

### STATISTICAL EVALUATION USING NORMAL DISTRIBUTION

**PROJECT:** Delphi Corporation - Vandalia Facility - Vandalia, OH  
**LOCATION:** MW-411D  
**COMPOUND:** Trichloroethene  
**COMMENT:**

Order	Sample Concentration
1	340
2	430
3	440
4	860
5	910
6	1100
7	1100
8	1100
9	1200
10	1200
11	1200
12	1300
13	1300
14	1460
15	1500
16	1710
17	2000
18	2240
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	

Normal Distribution	
Probability	Quartile
5.3	-1.62
10.5	-1.25
15.8	-1.00
21.1	-0.80
26.3	-0.63
31.6	-0.48
36.8	-0.34
42.1	-0.20
47.4	-0.07
52.6	0.07
57.9	0.20
63.2	0.34
68.4	0.48
73.7	0.63
78.9	0.80
84.2	1.00
89.5	1.25
94.7	1.62

Shapiro-Wilk Normality Test		
Residual	Coefficient (a)	Product (b)
1900.00	0.4886	928.34
1570.00	0.3253	510.72
1270.00	0.2553	324.23
640.00	0.2027	129.73
550.00	0.1587	87.29
200.00	0.1197	23.94
200.00	0.0837	16.74
100.00	0.0496	4.96
0.00	0.0163	0.00
	0.0000	
	0.0000	
	0.0000	
	0.0000	
	0.0000	
	0.0000	

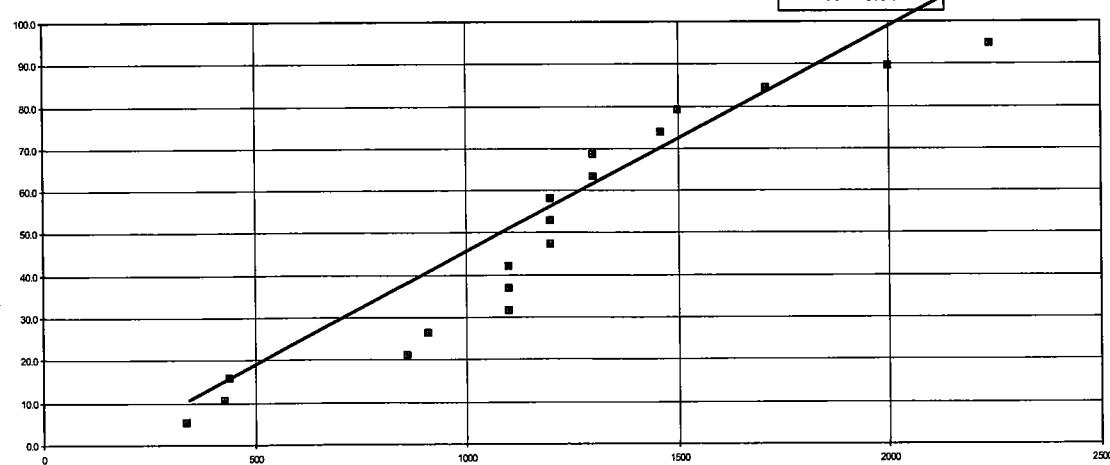
Shapiro-Wilk Sum: 2025.945  
 Shapiro-Wilk W: 0.955  
 Critical Value: 5%  
 Shapiro-Wilk Comparison W: 0.8970

Normality?: Appears Normally Distributed

Number of Samples: 18  
 Sample Mean: 1188.333  
 Sample Standard Deviation: 502.737

25% Quartile: 957.5  
 50% Quartile(median): 1200.0  
 75% Quartile: 1420.0  
 Inter-Quartile Range: 462.5  
 Upper Cutoff: 2113.8

Required Level of Confidence: 95%  
 Upper Confidence Limit: 1394.47  
 Upper Tolerance Limit: 2086.9



■ Sample Data      Linear (Sample Data)

### STATISTICAL EVALUATION USING LOG-NORMAL DISTRIBUTION

PROJECT: Delphi Corporation - Vandalia Facility - Vandalia, OH

LOCATION: MW-411D

COMPOUND: Trichloroethene

COMMENT:

Order	Sample Log Conc.
1	2.53
2	2.63
3	2.64
4	2.93
5	2.96
6	3.04
7	3.04
8	3.04
9	3.08
10	3.08
11	3.08
12	3.11
13	3.11
14	3.16
15	3.18
16	3.23
17	3.30
18	3.35
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	

Normal Distribution Probability	Quartile
5.3	-1.62
10.5	-1.25
15.8	-1.00
21.1	-0.80
26.3	-0.63
31.6	-0.48
36.8	-0.34
42.1	-0.20
47.4	-0.07
52.6	0.07
57.9	0.20
63.2	0.34
68.4	0.48
73.7	0.63
78.9	0.80
84.2	1.00
89.5	1.25
94.7	1.62

Shapiro-Wilk Normality Test		
Residual	Coefficient (a)	Product (b)
0.82	0.4886	0.40
0.67	0.3253	0.22
0.59	0.2553	0.15
0.24	0.2027	0.05
0.21	0.1587	0.03
0.07	0.1197	0.01
0.07	0.0837	0.01
0.04	0.0496	0.00
0.00	0.0163	0.00
	0.0000	
	0.0000	
	0.0000	
	0.0000	
	0.0000	
	0.00	

Shapiro-Wilk Sum: 0.866

Shapiro-Wilk W: 0.885

Critical Value: 5.0%

Shapiro-Wilk Comparison W: 0.8970

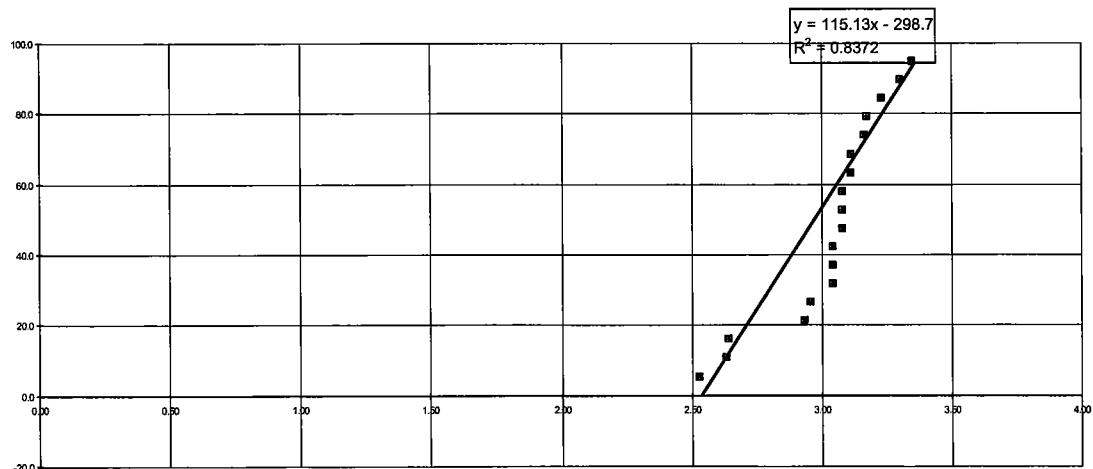
Normality?: Does Not Appear LogNormally Distributed

log()  
 Number of Samples: 18  
 Sample Mean: 3.029  
 Sample Standard Deviation: 0.223

25% Quartile: 957.5  
 50% Quartile(median): 1200.0  
 75% Quartile: 1420.0  
 Inter-Quartile Range: 462.50  
 Upper Cutoff: 2113.75

Required Level of Confidence: 95%  
 log() Natural Scale  
 Upper Confidence Limit: 3.12  
 Upper Tolerance Limit: 3.43 2677.8

PROBABILITY PLOT



### STATISTICAL EVALUATION USING NORMAL DISTRIBUTION

**PROJECT:** Delphi Corporation - Vandalia Facility - Vandalia, OH

**LOCATION:** MW-412D

**COMPOUND:** Trichloroethene

**COMMENT:**

Order	Sample Concentration
1	530
2	530
3	550
4	900
5	1100
6	1100
7	1100
8	1200
9	1300
10	1300
11	1400
12	1400
13	1500
14	1500
15	1680
16	2010
17	2410
18	2520
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	

Normal Distribution Probability	Quartile
5.3	-1.62
10.5	-1.25
15.8	-1.00
21.1	-0.80
26.3	-0.63
31.6	-0.48
36.8	-0.34
42.1	-0.20
47.4	-0.07
52.6	0.07
57.9	0.20
63.2	0.34
68.4	0.48
73.7	0.63
78.9	0.80
84.2	1.00
89.5	1.25
94.7	1.62

Shapiro-Wilk Normality Test		
Residual	Coefficient (a)	Product (b)
1990.00	0.4886	972.31
1880.00	0.3253	611.56
1460.00	0.2553	372.74
780.00	0.2027	158.11
400.00	0.1587	63.48
400.00	0.1197	47.88
300.00	0.0837	25.11
200.00	0.0496	9.92
0.00	0.0163	0.00
	0.0000	
	0.0000	
	0.0000	
	0.0000	
	0.0000	
	0.0000	

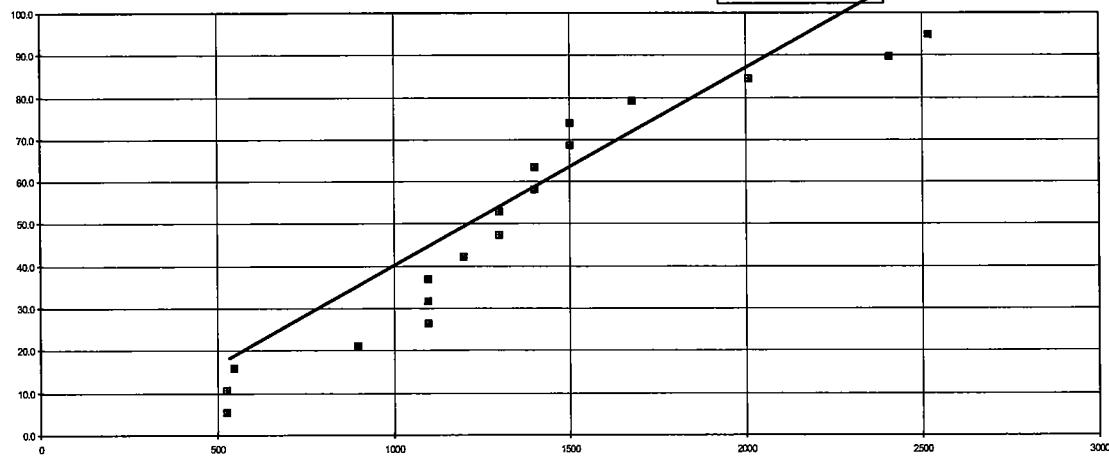
Shapiro-Wilk Sum: 2261.112  
 Shapiro-Wilk W: 0.932  
 Critical Value: 5%  
 Shapiro-Wilk Comparison W: 0.8970

Normality?: Appears Normally Distributed

Number of Samples: 18  
 Sample Mean: 1335.000  
 Sample Standard Deviation: 568.033

25% Quartile: 1100.0  
 50% Quartile(median): 1300.0  
 75% Quartile: 1500.0  
 Inter-Quartile Range: 400.0  
 Upper Cutoff: 2100.0

Required Level of Confidence: 95%  
 Upper Confidence Limit: 1567.91  
 Upper Tolerance Limit: 2350.2



■ Sample Data      Linear (Sample Data)

### STATISTICAL EVALUATION USING LOG-NORMAL DISTRIBUTION

PROJECT: Delphi Corporation - Vandalia Facility - Vandalia, OH

LOCATION: MW-412D

COMPOUND: Trichloroethene

COMMENT:

Order	Sample Log Conc.
1	2.72
2	2.72
3	2.74
4	2.95
5	3.04
6	3.04
7	3.04
8	3.08
9	3.11
10	3.11
11	3.15
12	3.15
13	3.18
14	3.18
15	3.23
16	3.30
17	3.38
18	3.40
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	

Normal Distribution Probability	Quartile
5.3	-1.62
10.5	-1.25
15.8	-1.00
21.1	-0.80
26.3	-0.63
31.6	-0.48
36.8	-0.34
42.1	-0.20
47.4	-0.07
52.6	0.07
57.9	0.20
63.2	0.34
68.4	0.48
73.7	0.63
78.9	0.80
84.2	1.00
89.5	1.25
94.7	1.62

Shapiro-Wilk Normality Test		
Residual	Coefficient (a)	Product (b)
0.68	0.4886	0.33
0.66	0.3253	0.21
0.56	0.2553	0.14
0.27	0.2027	0.05
0.13	0.1587	0.02
0.13	0.1197	0.02
0.10	0.0837	0.01
0.07	0.0496	0.00
0.00	0.0163	0.00
	0.0000	
	0.0000	
	0.0000	
	0.0000	
	0.0000	
	0.0000	
	0.00	

Shapiro-Wilk Sum: 0.793

Shapiro-Wilk W: 0.920

Critical Value: 5.0%

Shapiro-Wilk Comparison W: 0.8970

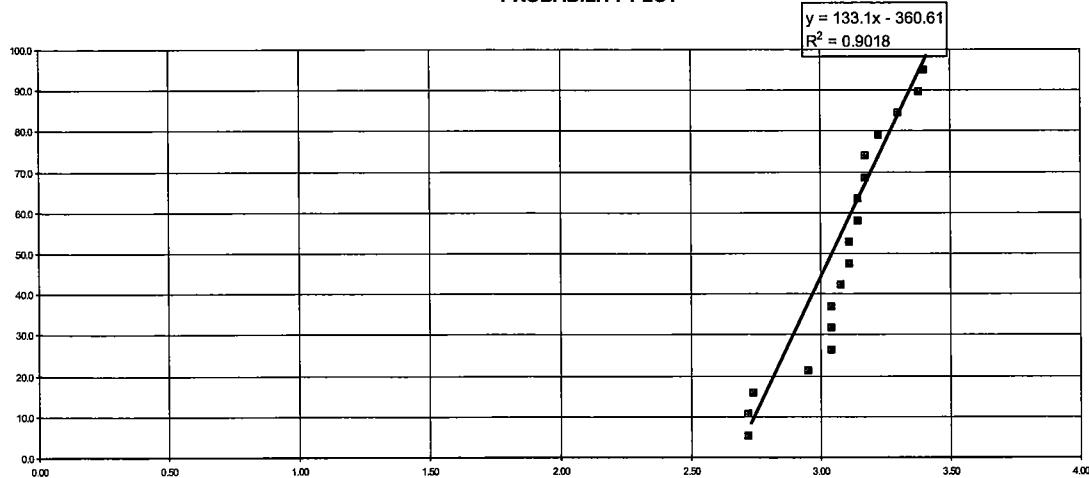
Normality?: Appears LogNormally Distributed

Number of Samples: 18  
 Sample Mean: 3.085  
 Sample Standard Deviation: 0.200

25% Quartile: 1100.0  
 50% Quartile(median): 1300.0  
 75% Quartile: 1500.0  
 Inter-Quartile Range: 400.00  
 Upper Cutoff: 2100.00

Required Level of Confidence: 95%  
 log() Natural Scale  
 Upper Confidence Limit: 3.17  
 Upper Tolerance Limit: 3.44 2775.5

PROBABILITY PLOT



■ Sample Data Linear (Sample Data)

### STATISTICAL EVALUATION USING NORMAL DISTRIBUTION

**PROJECT:** Delphi Corporation - Vandalia Facility - Vandalia, OH

**LOCATION:** MW-413D

**COMPOUND:** Trichloroethene

**COMMENT:**

Order	Sample Concentration
1	0.11
2	0.11
3	0.91
4	18.3
5	22
6	27
7	40
8	76
9	85
10	88
11	91
12	100
13	107
14	121
15	130
16	139.00
17	140.00
18	150.00
19	200.00
20	200.00
21	204.00
22	321.00
23	460.00
24	613.00
25	1210.00
26	1790.00
27	3680.00
28	
29	
30	

Normal Distribution Probability	Quartile
3.6	-1.80
7.1	-1.47
10.7	-1.24
14.3	-1.07
17.9	-0.92
21.4	-0.79
25.0	-0.67
28.6	-0.57
32.1	-0.46
35.7	-0.37
39.3	-0.27
42.9	-0.18
46.4	-0.09
50.0	0.00
53.6	0.09
57.1	0.18
60.7	0.27
64.3	0.37
67.9	0.46
71.4	0.57
75.0	0.67
78.6	0.79
82.1	0.92
85.7	1.07
89.3	1.24
92.9	1.47
96.4	1.80

Shapiro-Wilk Normality Test		
Residual	Coefficient (a)	Product (b)
3679.89	0.4366	1606.64
1789.89	0.3018	540.19
1209.09	0.2522	304.93
594.70	0.2152	127.98
438.00	0.1848	80.94
294.00	0.1584	46.57
164.00	0.1346	22.07
124.00	0.1128	13.99
115.00	0.0923	10.61
62.00	0.0728	4.51
49.00	0.0540	2.65
39.00	0.0358	1.40
23.00	0.0178	0.41
	0.0000	
	0.0000	

Shapiro-Wilk Sum: 2762.894

Shapiro-Wilk W: 0.494

Critical Value: 5%

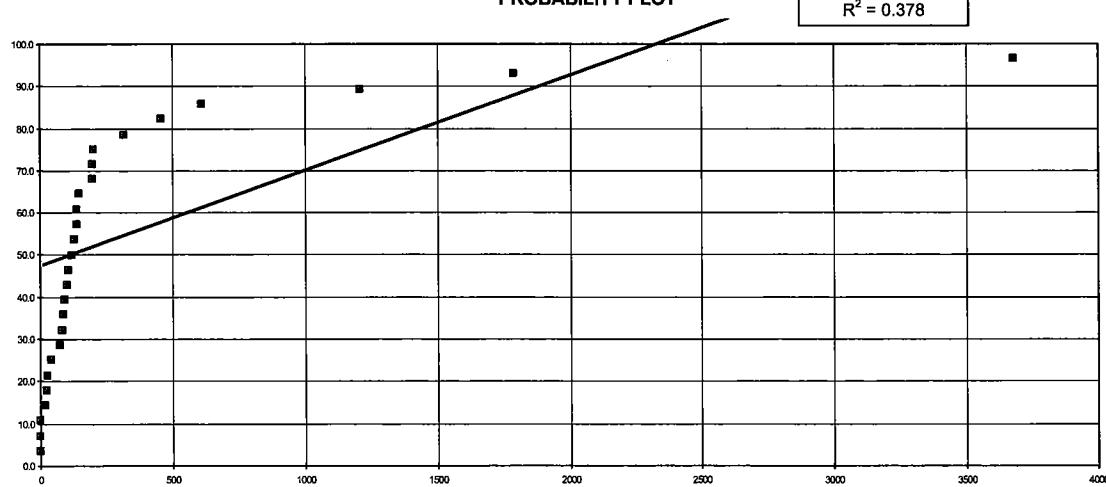
Shapiro-Wilk Comparison W: 0.9230

Normality?: Does Not Appear Normally Distributed

Number of Samples: 27  
 Sample Mean: 370.868  
 Sample Standard Deviation: 771.002

25% Quartile: 58.0  
 50% Quartile(median): 121.0  
 75% Quartile: 202.0  
 Inter-Quartile Range: 144.0  
 Upper Cutoff: 418.0

Required Level of Confidence: 95%  
 Upper Confidence Limit: 623.95  
 Upper Tolerance Limit: 1710.0



■ Sample Data

Linear (Sample Data)

### STATISTICAL EVALUATION USING LOG-NORMAL DISTRIBUTION

**PROJECT:** Delphi Corporation - Vandalia Facility - Vandalia, OH

**LOCATION:** MW-413D

**COMPOUND:** Trichloroethene

**COMMENT:**

Order	Sample Log Conc.
1	-0.96
2	-0.96
3	-0.04
4	1.26
5	1.34
6	1.43
7	1.60
8	1.88
9	1.93
10	1.94
11	1.96
12	2.00
13	2.03
14	2.08
15	2.11
16	2.14
17	2.15
18	2.18
19	2.30
20	2.30
21	2.31
22	2.51
23	2.66
24	2.79
25	3.08
26	3.25
27	3.57
28	
29	
30	

Normal Distribution Probability	Quartile
3.6	-1.80
7.1	-1.47
10.7	-1.24
14.3	-1.07
17.9	-0.92
21.4	-0.79
25.0	-0.67
28.6	-0.57
32.1	-0.46
35.7	-0.37
39.3	-0.27
42.9	-0.18
46.4	-0.09
50.0	0.00
53.6	0.09
57.1	0.18
60.7	0.27
64.3	0.37
67.9	0.46
71.4	0.57
75.0	0.67
78.6	0.79
82.1	0.92
85.7	1.07
89.3	1.24
92.9	1.47
96.4	1.80

Shapiro-Wilk Normality Test		
Residual	Coefficient (a)	Product (b)
4.52	0.4366	1.98
4.21	0.3018	1.27
3.12	0.2522	0.79
1.53	0.2152	0.33
1.32	0.1848	0.24
1.08	0.1584	0.17
0.71	0.1346	0.10
0.42	0.1128	0.05
0.37	0.0923	0.03
0.23	0.0728	0.02
0.19	0.0540	0.01
0.14	0.0358	0.01
0.08	0.0178	0.00
	0.0000	
	0.00	

Shapiro-Wilk Sum: 4.987

Shapiro-Wilk W: 0.838

Critical Value: 5.0%

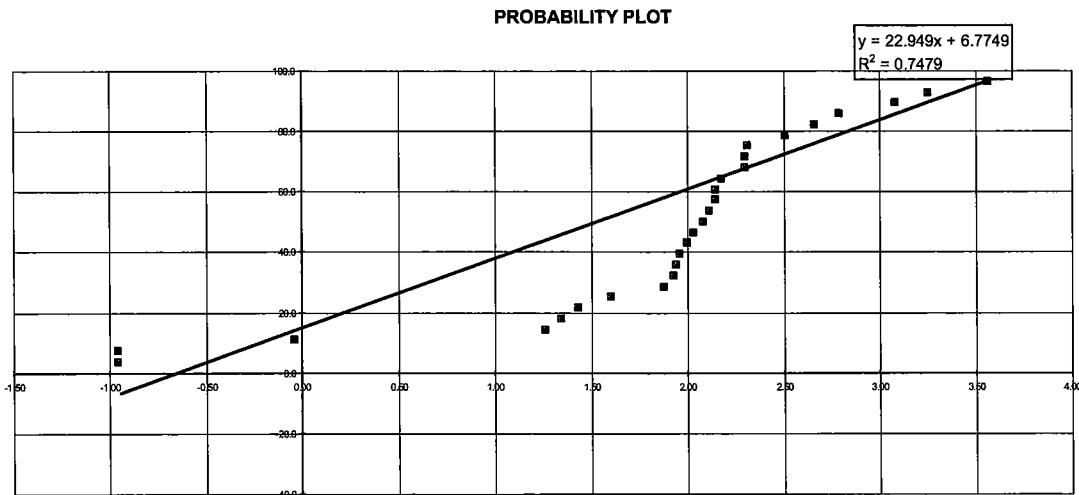
Shapiro-Wilk Comparison W: 0.9230

Normality?: Does Not Appear LogNormally Distributed

log()  
 Number of Samples: 27  
 Sample Mean: 1.884  
 Sample Standard Deviation: 1.068

25% Quartile: 58.0  
 50% Quartile(median): 121.0  
 75% Quartile: 202.0  
 Inter-Quartile Range: 144.00  
 Upper Cutoff: 418.00

Required Level of Confidence: 95%  
 log() Natural Scale  
 Upper Confidence Limit: 2.23  
 Upper Tolerance Limit: 3.74 5481.9



### STATISTICAL EVALUATION USING NORMAL DISTRIBUTION

**PROJECT:** Delphi Corporation - Vandalia Facility - Vandalia, OH

**LOCATION:** MW-414D

**COMPOUND:** Trichloroethene

**COMMENT:**

Order	Sample Concentration
1	0.05
2	0.11
3	0.11
4	0.11
5	0.11
6	0.11
7	0.11
8	0.14
9	0.5
10	0.53
11	0.56
12	0.59
13	0.78
14	1
15	1.5
16	2.50
17	2.50
18	3.70
19	4.80
20	6.60
21	6.70
22	30.20
23	116.00
24	352.00
25	377.00
26	
27	
28	
29	
30	

Normal Distribution Probability	Quartile
3.8	-1.77
7.7	-1.43
11.5	-1.20
15.4	-1.02
19.2	-0.87
23.1	-0.74
26.9	-0.62
30.8	-0.50
34.6	-0.40
38.5	-0.29
42.3	-0.19
46.2	-0.10
50.0	0.00
53.8	0.10
57.7	0.19
61.5	0.29
65.4	0.40
69.2	0.50
73.1	0.62
76.9	0.74
80.8	0.87
84.6	1.02
88.5	1.20
92.3	1.43
96.2	1.77

Shapiro-Wilk Normality Test Residual	Coefficient (a)	Product (b)
376.95	0.4450	167.74
351.89	0.3069	108.00
115.89	0.2543	29.47
30.09	0.2148	6.46
6.59	0.1822	1.20
6.49	0.1539	1.00
4.69	0.1283	0.60
3.56	0.1046	0.37
2.00	0.0823	0.16
1.97	0.0610	0.12
0.94	0.0403	0.04
0.41	0.0200	0.01
	0.0000	
	0.0000	
	0.0000	

Shapiro-Wilk Sum: 315.176

Shapiro-Wilk W: 0.401

Critical Value: 5%

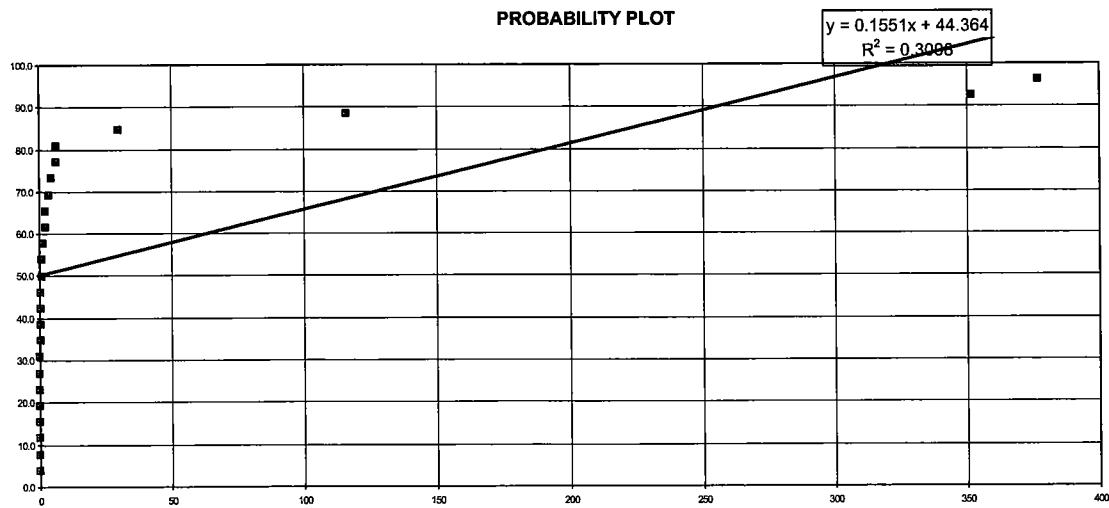
Shapiro-Wilk Comparison W: 0.9180

Normality?: Does Not Appear Normally Distributed

Number of Samples: 25  
 Sample Mean: 36.332  
 Sample Standard Deviation: 101.559

25% Quartile: 0.1  
 50% Quartile(median): 0.8  
 75% Quartile: 4.8  
 Inter-Quartile Range: 4.7  
 Upper Cutoff: 11.8

Required Level of Confidence: 95%  
 Upper Confidence Limit: 71.08  
 Upper Tolerance Limit: 213.5



### STATISTICAL EVALUATION USING LOG-NORMAL DISTRIBUTION

**PROJECT:** Delphi Corporation - Vandalia Facility - Vandalia, OH

**LOCATION:** MW-414D

**COMPOUND:** Trichloroethene

**COMMENT:**

Sample Order	Log Conc.
1	-1.30
2	-0.96
3	-0.96
4	-0.96
5	-0.96
6	-0.96
7	-0.96
8	-0.85
9	-0.30
10	-0.28
11	-0.25
12	-0.23
13	-0.11
14	0.00
15	0.18
16	0.40
17	0.40
18	0.57
19	0.68
20	0.82
21	0.83
22	1.48
23	2.06
24	2.55
25	2.58
26	
27	
28	
29	
30	

Normal Distribution Probability	Quatrile
3.8	-1.77
7.7	-1.43
11.5	-1.20
15.4	-1.02
19.2	-0.87
23.1	-0.74
26.9	-0.62
30.8	-0.50
34.6	-0.40
38.5	-0.29
42.3	-0.19
46.2	-0.10
50.0	0.00
53.8	0.10
57.7	0.19
61.5	0.29
65.4	0.40
69.2	0.50
73.1	0.62
76.9	0.74
80.8	0.87
84.6	1.02
88.5	1.20
92.3	1.43
96.2	1.77

Shapiro-Wilk Normality Test		
Residual	Coefficient (a)	Product (b)
3.88	0.4450	1.73
3.51	0.3069	1.08
3.02	0.2543	0.77
2.44	0.2148	0.52
1.78	0.1822	0.33
1.78	0.1539	0.27
1.64	0.1283	0.21
1.42	0.1046	0.15
0.70	0.0823	0.06
0.67	0.0610	0.04
0.43	0.0403	0.02
0.23	0.0200	0.00
	0.0000	
	0.0000	
	0.00	

Shapiro-Wilk Sum: 5.172

Shapiro-Wilk W: 0.897

Critical Value: 5.0%

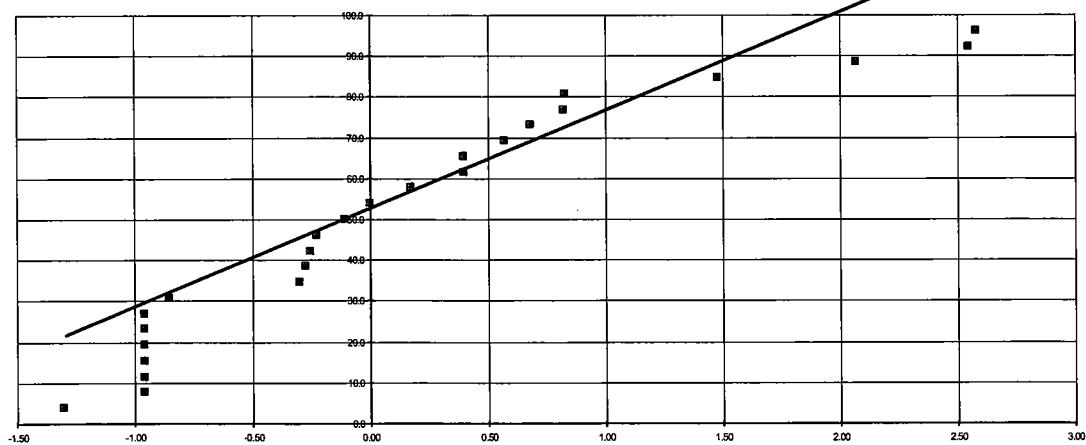
Shapiro-Wilk Comparison W: 0.9180

Normality?: Does Not Appear LogNormally Distributed

Number of Samples: 25  
 Sample Mean: 0.138  
 Sample Standard Deviation: 1.115

25% Quatrile: 0.1  
 50% Quatrile(median): 0.8  
 75% Quatrile: 4.8  
 Inter-Quatrile Range: 4.69  
 Upper Cutoff: 11.84

Required Level of Confidence: 95%  
 log() Natural Scale  
 Upper Confidence Limit: 0.52  
 Upper Tolerance Limit: 2.08 121.1



■ Sample Data      Linear (Sample Data)

### STATISTICAL EVALUATION USING NORMAL DISTRIBUTION

**PROJECT:** Delphi Corporation - Vandalia Facility - Vandalia, OH  
**LOCATION:** MW-416D  
**COMPOUND:** Trichloroethene  
**COMMENT:**

Order	Sample Concentration
1	0.05
2	0.11
3	0.11
4	0.11
5	0.11
6	0.11
7	0.11
8	0.155
9	0.22
10	0.25
11	0.42
12	0.88
13	2.5
14	2.5
15	2.5
16	3
17	3
18	3.00
19	3.40
20	5.10
21	5.40
22	5.60
23	6.00
24	6.10
25	6.30
26	29.20
27	
28	
29	
30	

Normal Distribution Probability	Quartile
3.7	-1.79
7.4	-1.45
11.1	-1.22
14.8	-1.04
18.5	-0.90
22.2	-0.76
25.9	-0.65
29.6	-0.54
33.3	-0.43
37.0	-0.33
40.7	-0.23
44.4	-0.14
48.1	-0.05
51.9	0.05
55.6	0.14
59.3	0.23
63.0	0.33
66.7	0.43
70.4	0.54
74.1	0.65
77.8	0.76
81.5	0.90
85.2	1.04
88.9	1.22
92.6	1.45
96.3	1.79

Shapiro-Wilk Normality Test		
Residual	Coefficient (a)	Product (b)
29.15	0.4407	12.85
6.19	0.3043	1.88
5.99	0.2533	1.52
5.89	0.2151	1.27
5.49	0.1836	1.01
5.29	0.1563	0.83
4.99	0.1316	0.66
3.25	0.1089	0.35
2.78	0.0876	0.24
2.35	0.0672	0.16
2.18	0.0476	0.10
1.62	0.0284	0.05
0.00	0.0094	0.00
	0.0000	
	0.0000	

Shapiro-Wilk Sum: 20.910

Shapiro-Wilk W: 0.530

Critical Value: 5%

Shapiro-Wilk Comparison W: 0.9200

Normality?: Does Not Appear Normally Distributed

Number of Samples: 26  
 Sample Mean: 3.286  
 Sample Standard Deviation: 5.746

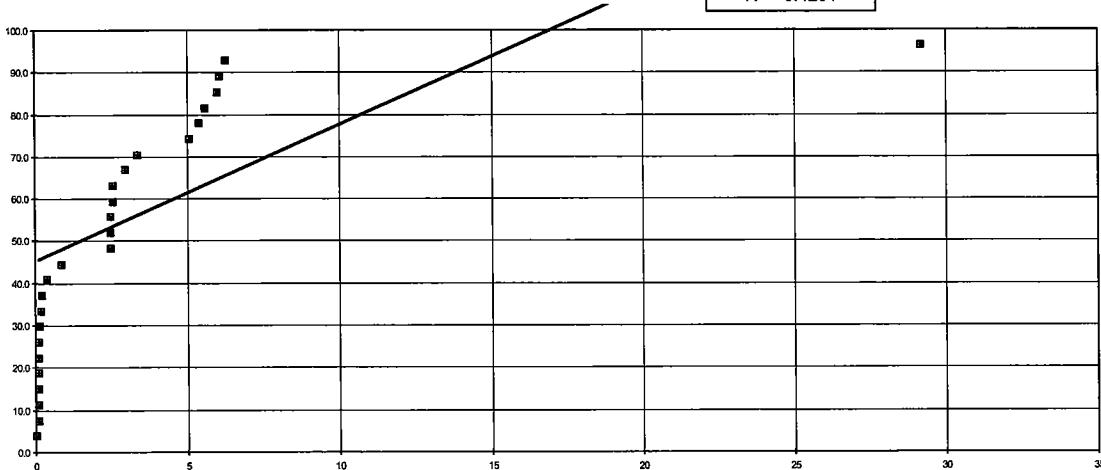
25% Quartile: 0.1  
 50% Quartile(median): 2.5  
 75% Quartile: 4.7  
 Inter-Quartile Range: 4.6  
 Upper Cutoff: 11.5

Required Level of Confidence: 95%  
 Upper Confidence Limit: 5.21  
 Upper Tolerance Limit: 13.3

**PROBABILITY PLOT**

$$y = 3.2295x + 39.388$$

$$R^2 = 0.4291$$



■ Sample Data      Linear (Sample Data)

### STATISTICAL EVALUATION USING LOG-NORMAL DISTRIBUTION

**PROJECT:** Delphi Corporation - Vandalia Facility - Vandalia, OH

**LOCATION:** MW-416D

**COMPOUND:** Trichloroethene

**COMMENT:**

Order	Sample Log Conc.
1	-1.30
2	-0.96
3	-0.96
4	-0.96
5	-0.96
6	-0.96
7	-0.96
8	-0.81
9	-0.66
10	-0.60
11	-0.38
12	-0.06
13	0.40
14	0.40
15	0.40
16	0.41
17	0.41
18	0.48
19	0.53
20	0.71
21	0.73
22	0.75
23	0.78
24	0.79
25	0.80
26	1.47
27	
28	
29	
30	

Normal Distribution Probability	Quartile
3.7	-1.79
7.4	-1.45
11.1	-1.22
14.8	-1.04
18.5	-0.90
22.2	-0.76
25.9	-0.65
29.6	-0.54
33.3	-0.43
37.0	-0.33
40.7	-0.23
44.4	-0.14
48.1	-0.05
51.9	0.05
55.6	0.14
59.3	0.23
63.0	0.33
66.7	0.43
70.4	0.54
74.1	0.65
77.8	0.76
81.5	0.90
85.2	1.04
88.9	1.22
92.6	1.45
96.3	1.79

Shapiro-Wilk Normality Test		
Residual	Coefficient (a)	Product (b)
2.77	0.4407	1.22
1.76	0.3043	0.53
1.74	0.2533	0.44
1.74	0.2151	0.37
1.71	0.1836	0.31
1.69	0.1563	0.26
1.67	0.1316	0.22
1.34	0.1089	0.15
1.13	0.0876	0.10
1.02	0.0672	0.07
0.79	0.0476	0.04
0.45	0.0284	0.01
0.00	0.0094	0.00
	0.0000	
	0.00	

Shapiro-Wilk Sum: 3.731

Shapiro-Wilk W: 0.885

Critical Value: 5.0%

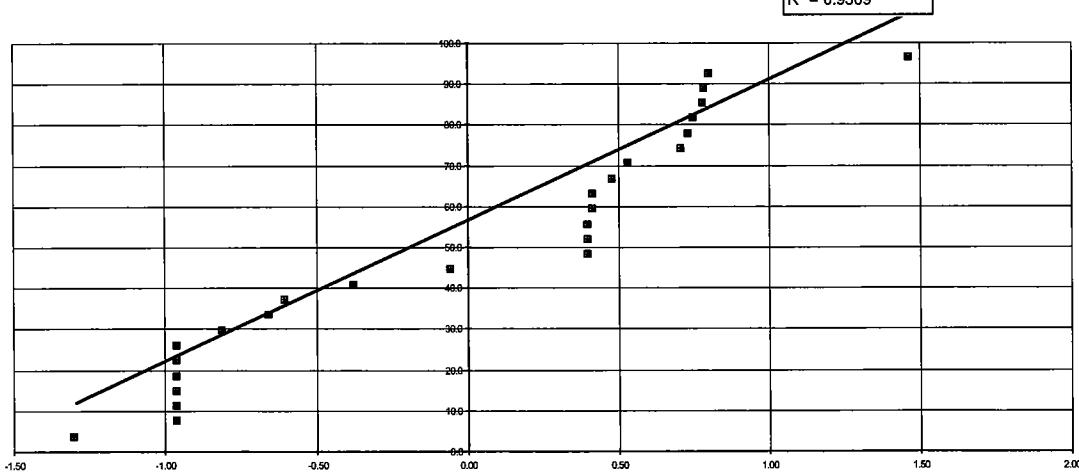
Shapiro-Wilk Comparison W: 0.9200

Normality?: Does Not Appear LogNormally Distributed

Number of Samples: 26  
 Sample Mean: -0.019  
 Sample Standard Deviation: 0.793

25% Quartile: 0.1  
 50% Quartile(median): 2.5  
 75% Quartile: 4.7  
 Inter-Quartile Range: 4.55  
 Upper Cutoff: 11.51

Required Level of Confidence:	log()
95%	Natural Scale
Upper Confidence Limit:	0.25
Upper Tolerance Limit:	1.36 23.0



### STATISTICAL EVALUATION USING NORMAL DISTRIBUTION

**PROJECT:** Delphi Corporation - Vandalia Facility - Vandalia, OH

**LOCATION:** MW-417D

**COMPOUND:** Trichloroethene

**COMMENT:**

Order	Sample Concentration
1	0.07
2	0.085
3	0.11
4	0.11
5	0.11
6	0.11
7	0.11
8	0.155
9	0.25
10	0.32
11	0.36
12	0.37
13	0.96
14	0.96
15	1.6
16	3
17	3
18	2.50
19	2.50
20	2.60
21	3.50
22	7.40
23	8.00
24	9.00
25	9.00
26	9.32
27	
28	
29	
30	

Normal Distribution Probability	Quartile
3.7	-1.79
7.4	-1.45
11.1	-1.22
14.8	-1.04
18.5	-0.90
22.2	-0.76
25.9	-0.65
29.6	-0.54
33.3	-0.43
37.0	-0.33
40.7	-0.23
44.4	-0.14
48.1	-0.05
51.9	0.05
55.6	0.14
59.3	0.23
63.0	0.33
66.7	0.43
70.4	0.54
74.1	0.65
77.8	0.76
81.5	0.90
85.2	1.04
88.9	1.22
92.6	1.45
96.3	1.79

Shapiro-Wilk Normality Test		
Residual	Coefficient (a)	Product (b)
9.25	0.4407	4.08
8.92	0.3043	2.71
8.89	0.2533	2.25
7.89	0.2151	1.70
7.29	0.1836	1.34
3.39	0.1563	0.53
2.49	0.1316	0.33
2.35	0.1089	0.26
2.25	0.0876	0.20
2.18	0.0672	0.15
2.14	0.0476	0.10
1.23	0.0284	0.03
0.00	0.0094	0.00
	0.0000	
	0.0000	

Shapiro-Wilk Sum: 13.670

Shapiro-Wilk W: 0.728

Critical Value: 5%

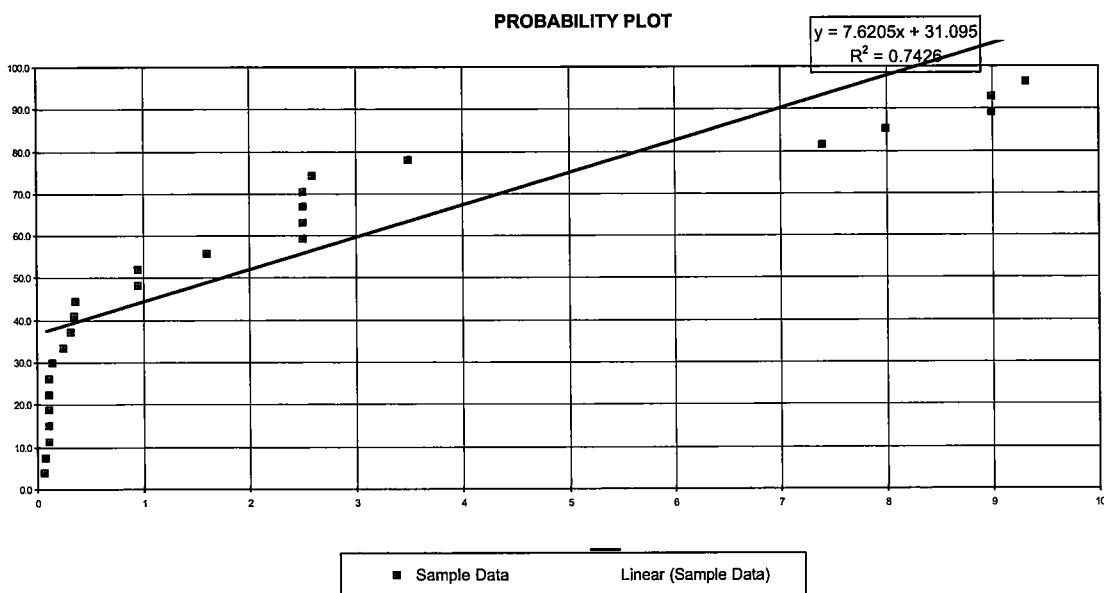
Shapiro-Wilk Comparison W: 0.9200

Normality?: Does Not Appear Normally Distributed

Number of Samples: 26  
 Sample Mean: 2.481  
 Sample Standard Deviation: 3.203

25% Quartile: 0.1  
 50% Quartile(median): 1.0  
 75% Quartile: 2.6  
 Inter-Quartile Range: 2.5  
 Upper Cutoff: 6.3

Required Level of Confidence: 95%  
 Upper Confidence Limit: 3.55  
 Upper Tolerance Limit: 8.1



### STATISTICAL EVALUATION USING LOG-NORMAL DISTRIBUTION

**PROJECT:** Delphi Corporation - Vandalia Facility - Vandalia, OH

**LOCATION:** MW-417D

**COMPOUND:** Trichloroethene

**COMMENT:**

Order	Sample Log Conc.
1	-1.15
2	-1.07
3	-0.96
4	-0.96
5	-0.96
6	-0.96
7	-0.96
8	-0.81
9	-0.60
10	-0.49
11	-0.44
12	-0.43
13	-0.02
14	-0.02
15	0.20
16	0.40
17	0.40
18	0.40
19	0.40
20	0.41
21	0.54
22	0.87
23	0.90
24	0.95
25	0.95
26	0.97
27	
28	
29	
30	

Normal Distribution Probability	Quartile
3.7	-1.79
7.4	-1.45
11.1	-1.22
14.8	-1.04
18.5	-0.90
22.2	-0.76
25.9	-0.65
29.6	-0.54
33.3	-0.43
37.0	-0.33
40.7	-0.23
44.4	-0.14
48.1	-0.05
51.9	0.05
55.6	0.14
59.3	0.23
63.0	0.33
66.7	0.43
70.4	0.54
74.1	0.65
77.8	0.76
81.5	0.90
85.2	1.04
88.9	1.22
92.6	1.45
96.3	1.79

Shapiro-Wilk Normality Test Residual	Coefficient (a)	Product (b)
2.12	0.4407	0.94
2.02	0.3043	0.62
1.91	0.2533	0.48
1.86	0.2151	0.40
1.83	0.1836	0.34
1.50	0.1563	0.23
1.37	0.1316	0.18
1.21	0.1089	0.13
1.00	0.0876	0.09
0.89	0.0672	0.06
0.84	0.0476	0.04
0.64	0.0284	0.02
0.00	0.0094	0.00
	0.0000	
	0.00	

Shapiro-Wilk Sum: 3.526

Shapiro-Wilk W: 0.890

Critical Value: 5.0%

Shapiro-Wilk Comparison W: 0.9200

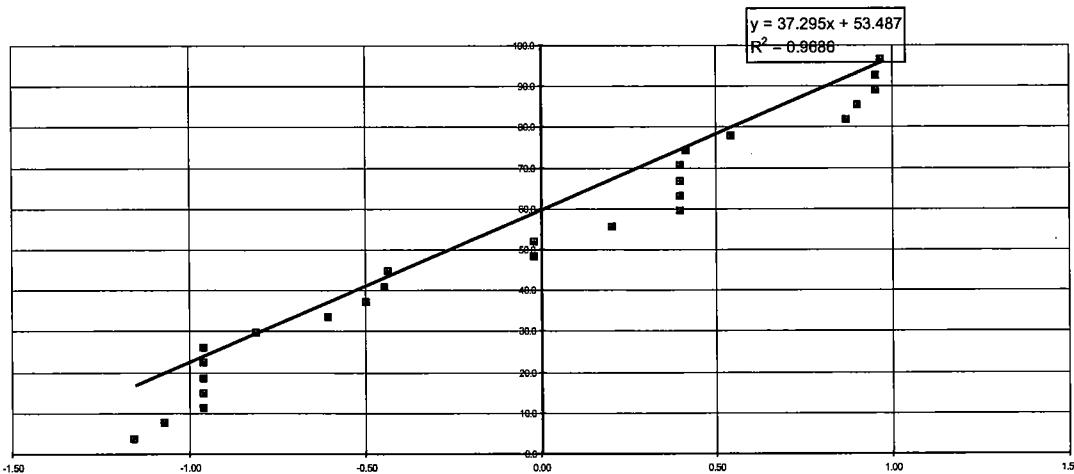
Normality?: Does Not Appear LogNormally Distributed

log()  
 Number of Samples: 26  
 Sample Mean: -0.093  
 Sample Standard Deviation: 0.748

25% Quartile: 0.1  
 50% Quartile(median): 1.0  
 75% Quartile: 2.6  
 Inter-Quartile Range: 2.45  
 Upper Cutoff: 6.26

Required Level of Confidence: 95%  
 log()  
 Natural Scale  
 Upper Confidence Limit: 0.16  
 Upper Tolerance Limit: 1.21 16.1

PROBABILITY PLOT



■ Sample Data Linear (Sample Data)

### STATISTICAL EVALUATION USING NORMAL DISTRIBUTION

**PROJECT:** Delphi Corporation - Vandalia Facility - Vandalia, OH

**LOCATION:** MW-418D

**COMPOUND:** Trichloroethene

**COMMENT:**

Order	Sample Concentration
1	0.11
2	0.14
3	0.31
4	0.37
5	0.60
6	0.80
7	3.40
8	6.80
9	10.00
10	19.00
11	44.00
12	92.00
13	94.00
14	140.00
15	151.00
16	212.00
17	284.00
18	341.00
19	350.00
20	700.00
21	1320.00
22	1990.00
23	2800.00
24	3290.00
25	4550.00
26	5950.00
27	
28	
29	
30	

Normal Distribution Probability	Quartile
3.7	-1.79
7.4	-1.45
11.1	-1.22
14.8	-1.04
18.5	-0.90
22.2	-0.76
25.9	-0.65
29.6	-0.54
33.3	-0.43
37.0	-0.33
40.7	-0.23
44.4	-0.14
48.1	-0.05
51.9	0.05
55.6	0.14
59.3	0.23
63.0	0.33
66.7	0.43
70.4	0.54
74.1	0.65
77.8	0.76
81.5	0.90
85.2	1.04
88.9	1.22
92.6	1.45
96.3	1.79

Shapiro-Wilk Normality Test		
Residual	Coefficient (a)	Product (b)
5949.89	0.4407	2622.12
4549.86	0.3043	1384.52
3289.70	0.2533	833.28
2799.64	0.2151	602.20
1989.40	0.1836	365.25
1319.20	0.1563	206.19
696.60	0.1316	91.67
343.20	0.1089	37.37
331.00	0.0876	29.00
265.00	0.0672	17.81
168.00	0.0476	8.00
59.00	0.0284	1.68
46.00	0.0094	0.43
	0.0000	
	0.0000	

Shapiro-Wilk Sum: 6199.520

Shapiro-Wilk W: 0.618

Critical Value: 5%

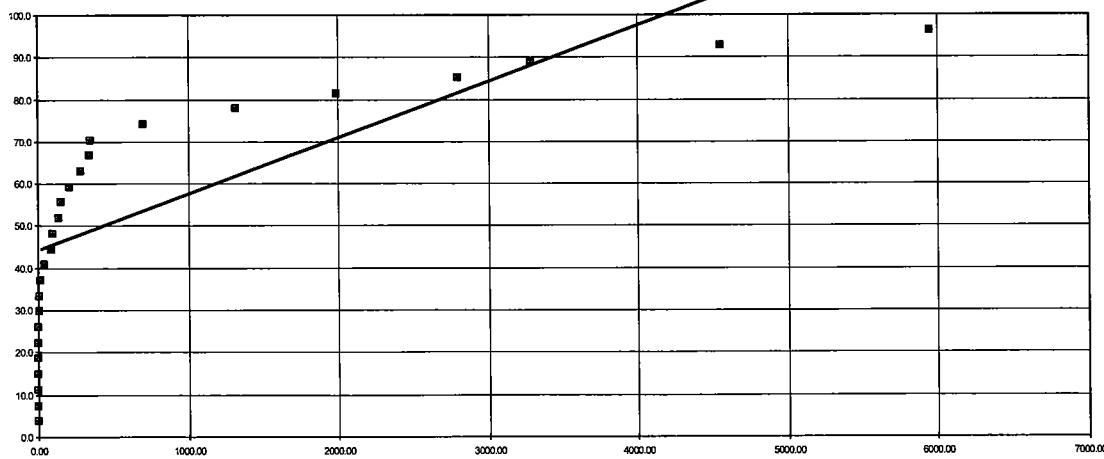
Shapiro-Wilk Comparison W: 0.9200

Normality?: Does Not Appear Normally Distributed

Number of Samples: 26  
 Sample Mean: 859.597  
 Sample Standard Deviation: 1577.042

25% Quartile: 4.3  
 50% Quartile(median): 117.0  
 75% Quartile: 612.5  
 Inter-Quartile Range: 608.3  
 Upper Cutoff: 1524.9

Required Level of Confidence: 95%  
 Upper Confidence Limit: 1387.90  
 Upper Tolerance Limit: 3604.7



### STATISTICAL EVALUATION USING LOG-NORMAL DISTRIBUTION

**PROJECT:** Delphi Corporation - Vandalia Facility - Vandalia, OH  
**LOCATION:** MW-418D  
**COMPOUND:** Trichloroethene  
**COMMENT:**

Order	Sample Log Conc.
1	-0.96
2	-0.85
3	-0.52
4	-0.44
5	-0.22
6	-0.10
7	0.53
8	0.83
9	1.00
10	1.28
11	1.64
12	1.96
13	1.97
14	2.15
15	2.18
16	2.33
17	2.45
18	2.53
19	2.54
20	2.85
21	3.12
22	3.30
23	3.45
24	3.52
25	3.66
26	3.77
27	
28	
29	
30	

Normal Distribution Probability	Quartile
3.7	-1.79
7.4	-1.45
11.1	-1.22
14.8	-1.04
18.5	-0.90
22.2	-0.76
25.9	-0.65
29.6	-0.54
33.3	-0.43
37.0	-0.33
40.7	-0.23
44.4	-0.14
48.1	-0.05
51.9	0.05
55.6	0.14
59.3	0.23
63.0	0.33
66.7	0.43
70.4	0.54
74.1	0.65
77.8	0.76
81.5	0.90
85.2	1.04
88.9	1.22
92.6	1.45
96.3	1.79

Shapiro-Wilk Normality Test		
Residual	Coefficient (a)	Product (b)
4.73	0.4407	2.09
4.51	0.3043	1.37
4.03	0.2533	1.02
3.88	0.2151	0.84
3.52	0.1836	0.65
3.22	0.1563	0.50
2.31	0.1316	0.30
1.71	0.1089	0.19
1.53	0.0876	0.13
1.17	0.0672	0.08
0.68	0.0476	0.03
0.22	0.0284	0.01
0.17	0.0094	0.00
	0.0000	
	0.00	

Shapiro-Wilk Sum: 7.210

Shapiro-Wilk W: 0.927

Critical Value: 5.0%

Shapiro-Wilk Comparison W: 0.9200

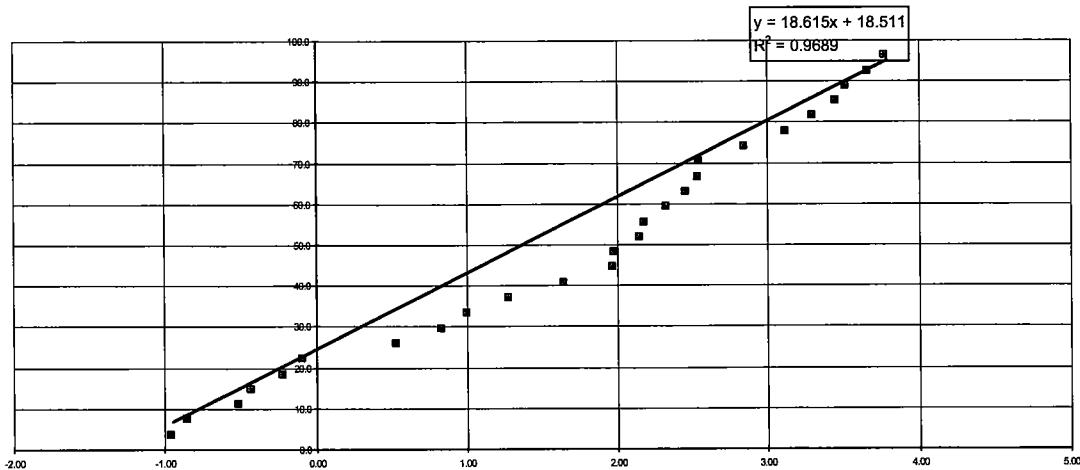
Normality?: Appears LogNormally Distributed

Number of Samples: 26  
 Sample Mean: 1.692  
 Sample Standard Deviation: 1.498

25% Quartile: 4.3  
 50% Quartile(median): 117.0  
 75% Quartile: 612.5  
 Inter-Quartile Range: 608.25  
 Upper Cutoff: 1524.88

Required Level of Confidence:	log()	Natural Scale
Upper Confidence Limit:	95%	2.19
Upper Tolerance Limit:	4.30	19907.2

**PROBABILITY PLOT**



■ Sample Data      Linear (Sample Data)

### STATISTICAL EVALUATION USING NORMAL DISTRIBUTION

**PROJECT:** Delphi Corporation - Vandalia Facility - Vandalia, OH

**LOCATION:** MW-419D

**COMPOUND:** Trichloroethene

**COMMENT:**

Order	Sample Concentration
1	0.22
2	0.33
3	0.555
4	0.6
5	9.9
6	12.6
7	17.8
8	26
9	28.4
10	34.2
11	36
12	38.8
13	46.5
14	48.8
15	51
16	51
17	53
18	59
19	110
20	148
21	182
22	
23	
24	
25	
26	
27	
28	
29	
30	

Normal Distribution Probability	Quartile
4.5	-1.69
9.1	-1.34
13.6	-1.10
18.2	-0.91
22.7	-0.75
27.3	-0.60
31.8	-0.47
36.4	-0.35
40.9	-0.23
45.5	-0.11
50.0	0.00
54.5	0.11
59.1	0.23
63.6	0.35
68.2	0.47
72.7	0.60
77.3	0.75
81.8	0.91
86.4	1.10
90.9	1.34
95.5	1.69

Shapiro-Wilk Normality Test		
Residual	Coefficient (a)	Product (b)
181.78	0.4643	84.40
147.67	0.3185	47.03
109.45	0.2578	28.21
58.40	0.2119	12.37
43.10	0.1736	7.48
38.40	0.1399	5.37
33.20	0.1092	3.63
22.80	0.0804	1.83
18.10	0.0530	0.96
4.60	0.0263	0.12
	0.0000	
	0.0000	
	0.0000	
	0.0000	
	0.0000	

Shapiro-Wilk Sum: 191.416

Shapiro-Wilk W: 0.800

Critical Value: 5%

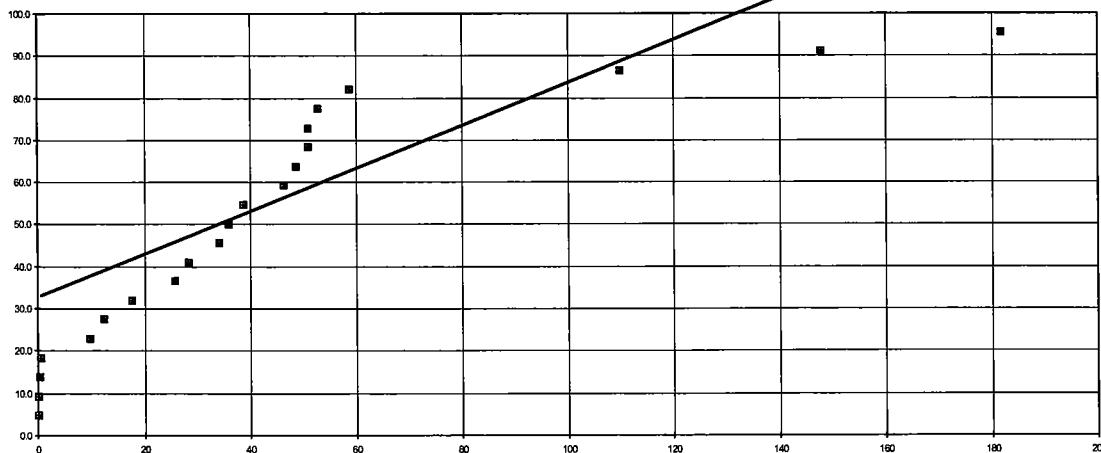
Shapiro-Wilk Comparison W: 0.9080

Normality?: Does Not Appear Normally Distributed

Number of Samples: 21  
 Sample Mean: 45.462  
 Sample Standard Deviation: 47.848

25% Quartile: 12.6  
 50% Quartile(median): 36.0  
 75% Quartile: 51.0  
 Inter-Quartile Range: 38.4  
 Upper Cutoff: 108.6

Required Level of Confidence: 95%  
 Upper Confidence Limit: 63.47  
 Upper Tolerance Limit: 129.9



### STATISTICAL EVALUATION USING LOG-NORMAL DISTRIBUTION

**PROJECT:** Delphi Corporation - Vandalia Facility - Vandalia, OH

**LOCATION:** MW-419D

**COMPOUND:** Trichloroethene

**COMMENT:**

Sample Order	Log Conc.
1	-0.66
2	-0.48
3	-0.26
4	-0.22
5	1.00
6	1.10
7	1.25
8	1.41
9	1.45
10	1.53
11	1.56
12	1.59
13	1.67
14	1.69
15	1.71
16	1.71
17	1.72
18	1.77
19	2.04
20	2.17
21	2.26
22	
23	
24	
25	
26	
27	
28	
29	
30	

	Normal Distribution Probability	Quartile
4.5	-1.69	
9.1	-1.34	
13.6	-1.10	
18.2	-0.91	
22.7	-0.75	
27.3	-0.60	
31.8	-0.47	
36.4	-0.35	
40.9	-0.23	
45.5	-0.11	
50.0	0.00	
54.5	0.11	
59.1	0.23	
63.6	0.35	
68.2	0.47	
72.7	0.60	
77.3	0.75	
81.8	0.91	
86.4	1.10	
90.9	1.34	
95.5	1.69	

Shapiro-Wilk Normality Test		
Residual	Coefficient (a)	Product (b)
2.92	0.4643	1.35
2.65	0.3185	0.84
2.30	0.2578	0.59
1.99	0.2119	0.42
0.73	0.1736	0.13
0.61	0.1399	0.08
0.46	0.1092	0.05
0.27	0.0804	0.02
0.21	0.0530	0.01
0.05	0.0263	0.00
	0.0000	
	0.0000	
	0.0000	
	0.0000	
	0.00	

Shapiro-Wilk Sum: 3.510

Shapiro-Wilk W: 0.806

Critical Value: 5.0%

Shapiro-Wilk Comparison W: 0.9080

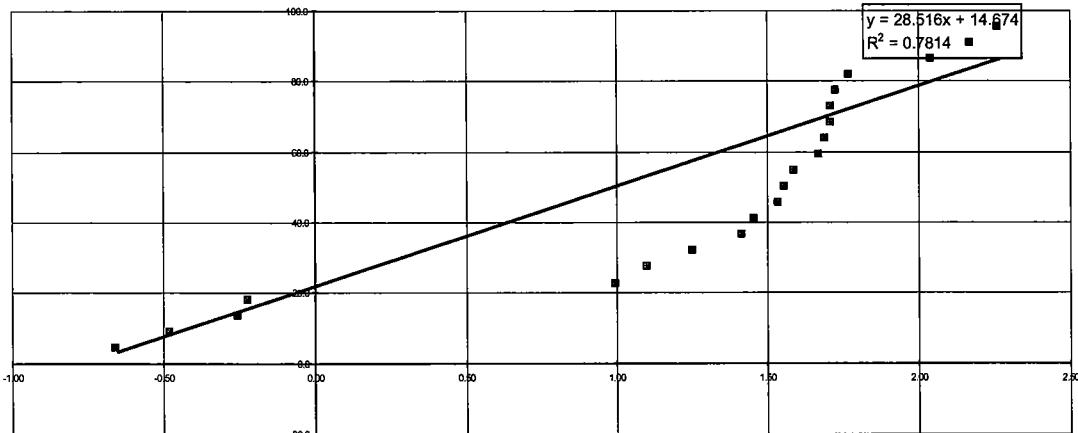
Normality?: Does Not Appear LogNormally Distributed

Number of Samples: 21  
 Sample Mean: 1.239  
 Sample Standard Deviation: 0.874

25% Quartile: 12.6  
 50% Quartile(median): 36.0  
 75% Quartile: 51.0  
 Inter-Quartile Range: 36.40  
 Upper Cutoff: 108.60

Required Level of Confidence: 95%  
 Natural Scale  
 Upper Confidence Limit: 1.57  
 Upper Tolerance Limit: 2.78 605.6

#### PROBABILITY PLOT



■ Sample Data      Linear (Sample Data)

### STATISTICAL EVALUATION USING NORMAL DISTRIBUTION

**PROJECT:** Delphi Corporation - Vandalia Facility - Vandalia, OH  
**LOCATION:** MW-420D  
**COMPOUND:** Trichloroethene  
**COMMENT:**

Order	Sample Concentration
1	1.20
2	1.65
3	1.85
4	11.00
5	12.00
6	21.00
7	35.00
8	52.00
9	64.50
10	65.00
11	70.00
12	170.00
13	182.00
14	207.00
15	250.00
16	270.00
17	275.00
18	470.00
19	480.00
20	560.00
21	600.00
22	752.00
23	2290.00
24	2500.00
25	3870.00
26	4830.00
27	
28	
29	
30	

Normal Distribution Probability	Quartile
3.7	-1.79
7.4	-1.45
11.1	-1.22
14.8	-1.04
18.5	-0.90
22.2	-0.76
25.9	-0.65
29.6	-0.54
33.3	-0.43
37.0	-0.33
40.7	-0.23
44.4	-0.14
48.1	-0.05
51.9	0.05
55.6	0.14
59.3	0.23
63.0	0.33
66.7	0.43
70.4	0.54
74.1	0.65
77.8	0.76
81.5	0.90
85.2	1.04
88.9	1.22
92.6	1.45
96.3	1.79

Shapiro-Wilk Normality Test		
Residual	Coefficient (a)	Product (b)
4828.80	0.4407	2128.05
3868.35	0.3043	1177.14
2498.15	0.2533	632.78
2279.00	0.2151	490.21
740.00	0.1836	135.86
579.00	0.1563	90.50
525.00	0.1316	69.09
428.00	0.1089	46.61
405.50	0.0876	35.52
210.00	0.0672	14.11
200.00	0.0476	9.52
80.00	0.0284	2.27
25.00	0.0094	0.24
	0.0000	
	0.0000	

Shapiro-Wilk Sum: 4831.907

Shapiro-Wilk W: 0.594

Critical Value: 5%

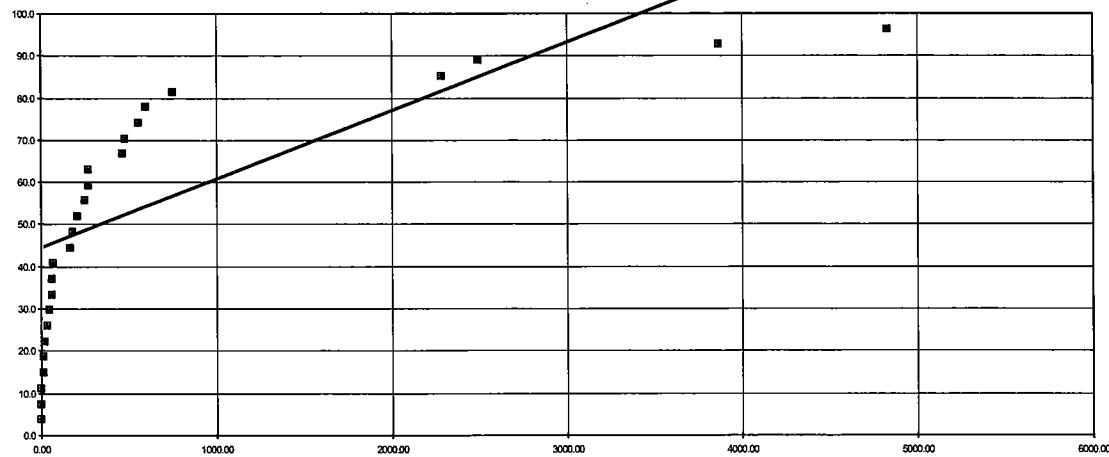
Shapiro-Wilk Comparison W: 0.9200

Normality?: Does Not Appear Normally Distributed

Number of Samples: 26  
 Sample Mean: 693.892  
 Sample Standard Deviation: 1253.882

25% Quartile: 39.3  
 50% Quartile(median): 194.5  
 75% Quartile: 540.0  
 Inter-Quartile Range: 500.8  
 Upper Cutoff: 1291.1

Required Level of Confidence: 95%  
 Upper Confidence Limit: 1113.93  
 Upper Tolerance Limit: 2876.5



■ Sample Data      Linear (Sample Data)

### STATISTICAL EVALUATION USING LOG-NORMAL DISTRIBUTION

**PROJECT:** Delphi Corporation - Vandalia Facility - Vandalia, OH

**LOCATION:** MW-420D

**COMPOUND:** Trichloroethene

**COMMENT:**

Order	Sample Log Conc.
1	0.08
2	0.22
3	0.27
4	1.04
5	1.08
6	1.32
7	1.54
8	1.72
9	1.81
10	1.81
11	1.85
12	2.23
13	2.26
14	2.32
15	2.40
16	2.43
17	2.44
18	2.67
19	2.68
20	2.75
21	2.78
22	2.88
23	3.36
24	3.40
25	3.59
26	3.68
27	
28	
29	
30	

Normal Distribution Probability	Quartile
3.7	-1.79
7.4	-1.45
11.1	-1.22
14.8	-1.04
18.5	-0.90
22.2	-0.76
25.9	-0.65
29.6	-0.54
33.3	-0.43
37.0	-0.33
40.7	-0.23
44.4	-0.14
48.1	-0.05
51.9	0.05
55.6	0.14
59.3	0.23
63.0	0.33
66.7	0.43
70.4	0.54
74.1	0.65
77.8	0.76
81.5	0.90
85.2	1.04
88.9	1.22
92.6	1.45
96.3	1.79

Shapiro-Wilk Normality Test Residual	Coefficient (a)	Product (b)
3.60	0.4407	1.59
3.37	0.3043	1.03
3.13	0.2533	0.79
2.32	0.2151	0.50
1.80	0.1836	0.33
1.46	0.1563	0.23
1.20	0.1316	0.16
0.97	0.1089	0.11
0.86	0.0876	0.08
0.63	0.0672	0.04
0.59	0.0476	0.03
0.17	0.0284	0.00
0.06	0.0094	0.00
	0.0000	
	0.00	

Shapiro-Wilk Sum: 4.878

Shapiro-Wilk W: 0.952

Critical Value: 5.0%

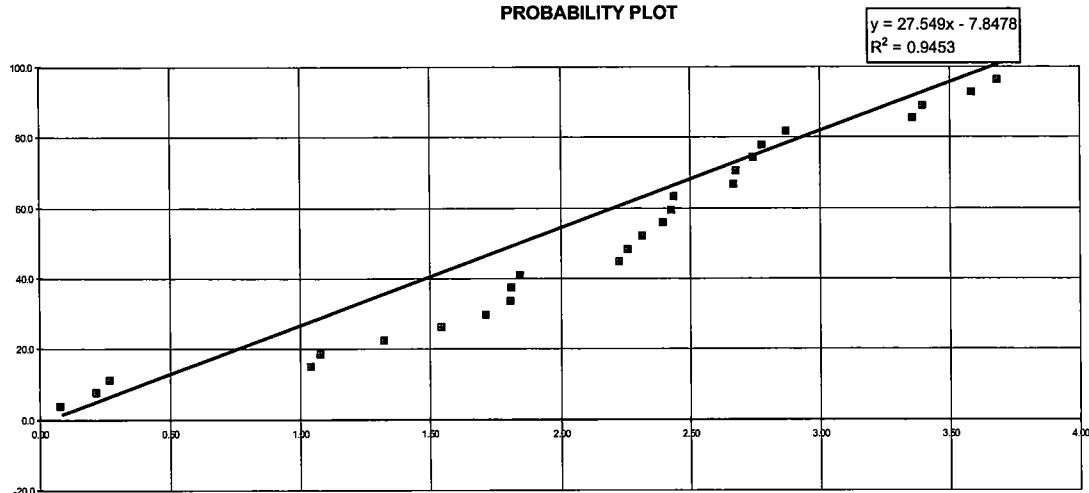
Shapiro-Wilk Comparison W: 0.9200

Normality?: Appears LogNormally Distributed

log()  
 Number of Samples: 26  
 Sample Mean: 2.100  
 Sample Standard Deviation: 1.000

25% Quartile: 39.3  
 50% Quartile(median): 194.5  
 75% Quartile: 540.0  
 Inter-Quartile Range: 500.75  
 Upper Cutoff: 1291.13

Required Level of Confidence: 95%  
 Natural Scale  
 Upper Confidence Limit: 2.43  
 Upper Tolerance Limit: 3.84 6918.9



### STATISTICAL EVALUATION USING NORMAL DISTRIBUTION

**PROJECT:** Delphi Corporation - Vandalia Facility - Vandalia, OH

**LOCATION:** MW-421D

**COMPOUND:** Trichloroethene

**COMMENT:**

Order	Sample Concentration
1	0.05
2	0.065
3	0.11
4	0.11
5	0.11
6	0.11
7	0.22
8	0.35
9	0.42
10	0.42
11	0.77
12	1.8
13	2.5
14	2.5
15	2.5
16	3
17	3
18	6.80
19	7.80
20	8.00
21	8.70
22	
23	
24	
25	
26	
27	
28	
29	
30	

Normal Distribution Probability	Quartile
4.5	-1.69
9.1	-1.34
13.6	-1.10
18.2	-0.91
22.7	-0.75
27.3	-0.60
31.8	-0.47
36.4	-0.35
40.9	-0.23
45.5	-0.11
50.0	0.00
54.5	0.11
59.1	0.23
63.6	0.35
68.2	0.47
72.7	0.60
77.3	0.75
81.8	0.91
86.4	1.10
90.9	1.34
95.5	1.69

Shapiro-Wilk Normality Test		
Residual	Coefficient (a)	Product (b)
8.65	0.4643	4.02
7.94	0.3185	2.53
7.69	0.2578	1.98
6.69	0.2119	1.42
2.39	0.1736	0.41
2.39	0.1399	0.33
2.28	0.1092	0.25
2.15	0.0804	0.17
2.08	0.0530	0.11
1.38	0.0263	0.04
	0.0000	
	0.0000	
	0.0000	
	0.0000	
	0.0000	

Shapiro-Wilk Sum: 11.261

Shapiro-Wilk W: 0.741

Critical Value: 5%

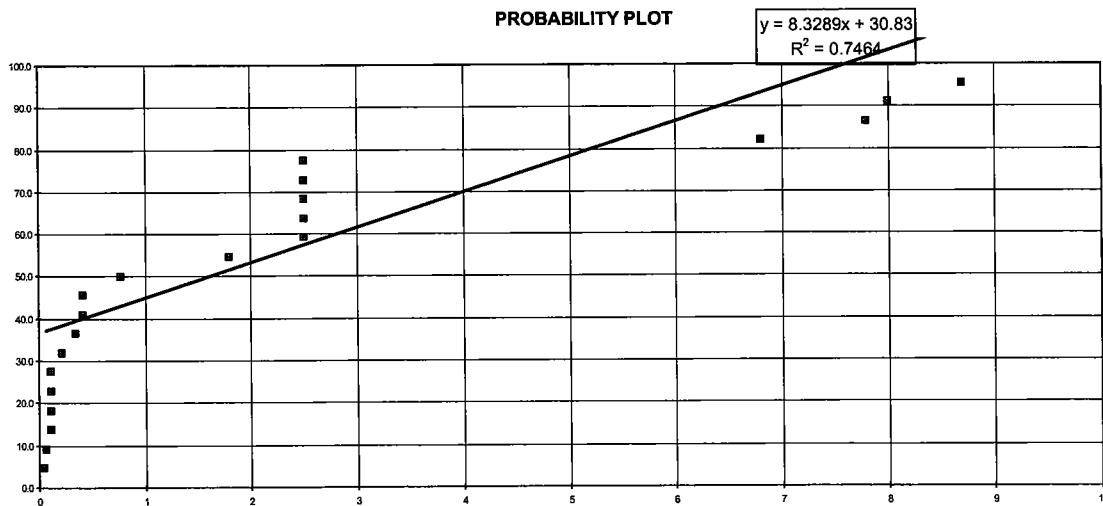
Shapiro-Wilk Comparison W: 0.9080

Normality?: Does Not Appear Normally Distributed

Number of Samples: 21  
 Sample Mean: 2.302  
 Sample Standard Deviation: 2.926

25% Quartile: 0.1  
 50% Quartile(median): 0.8  
 75% Quartile: 2.5  
 Inter-Quartile Range: 2.4  
 Upper Cutoff: 6.1

Required Level of Confidence: 95%  
 Upper Confidence Limit: 3.40  
 Upper Tolerance Limit: 7.5



■ Sample Data      Linear (Sample Data)

### STATISTICAL EVALUATION USING LOG-NORMAL DISTRIBUTION

**PROJECT:** Delphi Corporation - Vandalia Facility - Vandalia, OH  
**LOCATION:** MW-421D  
**COMPOUND:** Trichloroethene  
**COMMENT:**

Order	Sample Log Conc.
1	-1.30
2	-1.19
3	-0.96
4	-0.96
5	-0.96
6	-0.96
7	-0.66
8	-0.46
9	-0.38
10	-0.38
11	-0.11
12	0.26
13	0.40
14	0.40
15	0.40
16	0.40
17	0.40
18	0.83
19	0.89
20	0.90
21	0.94
22	
23	
24	
25	
26	
27	
28	
29	
30	

Normal Distribution Probability	Quartile
4.5	-1.69
9.1	-1.34
13.6	-1.10
18.2	-0.91
22.7	-0.75
27.3	-0.60
31.8	-0.47
36.4	-0.35
40.9	-0.23
45.5	-0.11
50.0	0.00
54.5	0.11
59.1	0.23
63.6	0.35
68.2	0.47
72.7	0.60
77.3	0.75
81.8	0.91
86.4	1.10
90.9	1.34
95.5	1.69

Shapiro-Wilk Normality Test		
Residual	Coefficient (a)	Product (b)
2.24	0.4643	1.04
2.09	0.3185	0.67
1.85	0.2578	0.48
1.79	0.2119	0.38
1.36	0.1736	0.24
1.36	0.1399	0.19
1.06	0.1092	0.12
0.85	0.0804	0.07
0.77	0.0530	0.04
0.63	0.0263	0.02
	0.0000	
	0.0000	
	0.0000	
	0.0000	
	0.00	

Shapiro-Wilk Sum: 3.230

Shapiro-Wilk W: 0.910

Critical Value: 5.0%

Shapiro-Wilk Comparison W: 0.9080

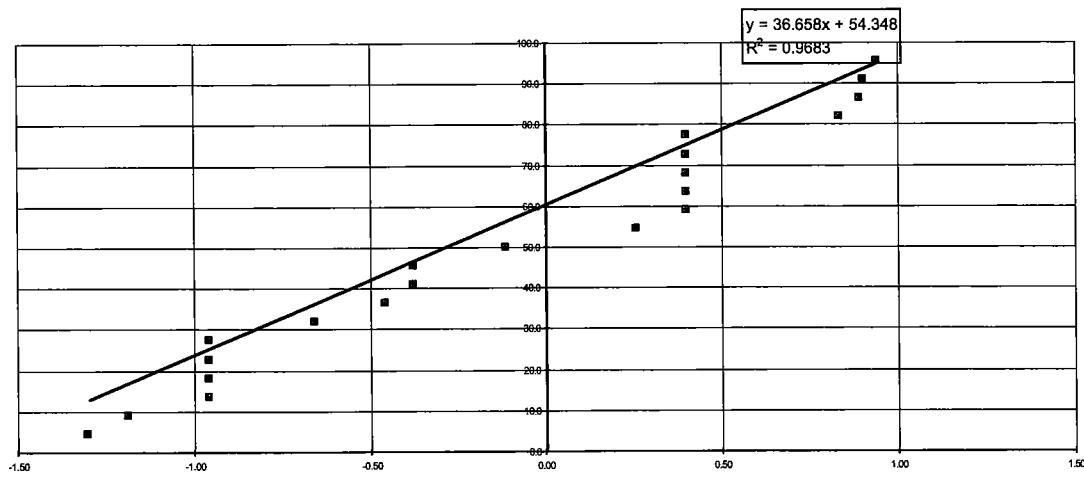
Normality?: Appears LogNormally Distributed

log()  
 Number of Samples: 21  
 Sample Mean: -0.119  
 Sample Standard Deviation: 0.757

25% Quartile: 0.1  
 50% Quartile(median): 0.8  
 75% Quartile: 2.5  
 Inter-Quartile Range: 2.39  
 Upper Cutoff: 6.09

Required Level of Confidence: 95%  
 log() Natural Scale  
 Upper Confidence Limit: 0.17  
 Upper Tolerance Limit: 1.22 16.5

PROBABILITY PLOT



### STATISTICAL EVALUATION USING NORMAL DISTRIBUTION

**PROJECT:** Delphi Corporation - Vandalia Facility - Vandalia, OH

**LOCATION:** MW-424D

**COMPOUND:** Trichloroethene

**COMMENT:**

Order	Sample Concentration
1	176
2	250
3	7300
4	11000
5	23000
6	25000
7	30000
8	31000
9	33000
10	38000
11	40000
12	50500
13	50700
14	61000
15	61400
16	63000
17	66800
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	

Normal Distribution Probability	Quartile
5.6	-1.59
11.1	-1.22
16.7	-0.97
22.2	-0.76
27.8	-0.59
33.3	-0.43
38.9	-0.28
44.4	-0.14
50.0	0.00
55.6	0.14
61.1	0.28
66.7	0.43
72.2	0.59
77.8	0.76
83.3	0.97
88.9	1.22
94.4	1.59

Shapiro-Wilk Normality Test		
Residual	Coefficient (a)	Product (b)
66624.00	0.4968	33098.80
62750.00	0.3273	20538.08
54100.00	0.2540	13741.40
50000.00	0.1988	9940.00
27700.00	0.1524	4221.48
25600.00	0.1109	2827.95
10000.00	0.0725	725.00
7000.00	0.0359	251.30
	0.0000	
	0.0000	
	0.0000	
	0.0000	
	0.0000	
	0.0000	
	0.0000	

Shapiro-Wilk Sum: 85344.008

Shapiro-Wilk W: 0.941

Critical Value: 5%

Shapiro-Wilk Comparison W: 0.8920

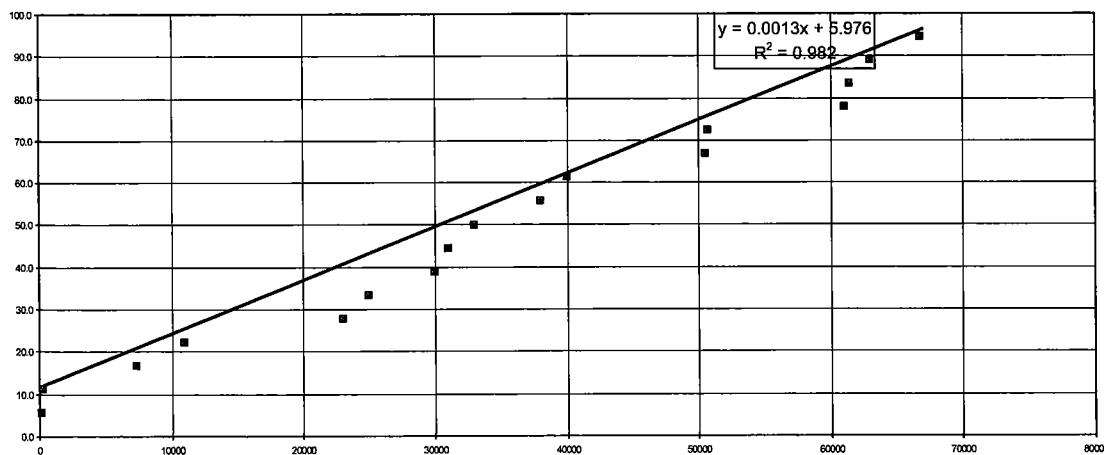
Normality?: Appears Normally Distributed

Number of Samples: 17  
 Sample Mean: 34830.941  
 Sample Standard Deviation: 21995.763

25% Quartile: 23000.0  
 50% Quartile(median): 33000.0  
 75% Quartile: 50700.0  
 Inter-Quartile Range: 27700.0  
 Upper Cutoff: 92250.0

Required Level of Confidence: 95%  
 Upper Confidence Limit: 44144.81  
 Upper Tolerance Limit: 74346.3

**PROBABILITY PLOT**



### STATISTICAL EVALUATION USING LOG-NORMAL DISTRIBUTION

PROJECT: Delphi Corporation - Vandalia Facility - Vandalia, OH

LOCATION: MW-424D

COMPOUND: Trichloroethene

COMMENT:

Order	Sample Log Conc.
1	2.25
2	2.40
3	3.86
4	4.04
5	4.36
6	4.40
7	4.48
8	4.49
9	4.52
10	4.58
11	4.60
12	4.70
13	4.71
14	4.79
15	4.79
16	4.80
17	4.82
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	

Normal Distribution Probability	Quartile
5.6	-1.59
11.1	-1.22
16.7	-0.97
22.2	-0.76
27.8	-0.59
33.3	-0.43
38.9	-0.28
44.4	-0.14
50.0	0.00
55.6	0.14
61.1	0.28
66.7	0.43
72.2	0.59
77.8	0.76
83.3	0.97
88.9	1.22
94.4	1.59

Shapiro-Wilk Normality Test		
Residual	Coefficient (a)	Product (b)
2.58	0.4968	1.28
2.40	0.3273	0.79
0.92	0.2540	0.23
0.74	0.1988	0.15
0.34	0.1524	0.05
0.31	0.1109	0.03
0.12	0.0725	0.01
0.09	0.0359	0.00
	0.0000	
	0.0000	
	0.0000	
	0.0000	
	0.0000	
	0.0000	
	0.00	

Shapiro-Wilk Sum: 2.549

Shapiro-Wilk W: 0.669

Critical Value: 5.0%

Shapiro-Wilk Comparison W: 0.8920

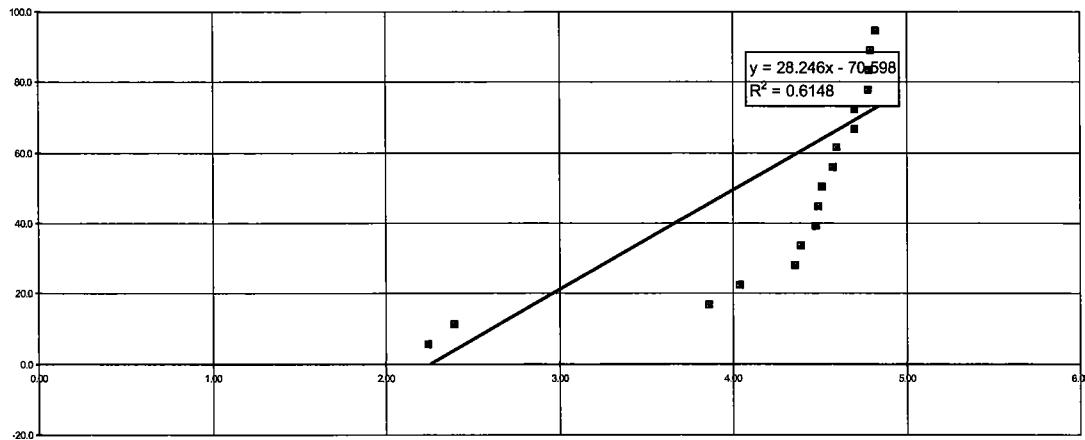
Normality?: Does Not Appear LogNormally Distributed

log()  
 Number of Samples: 17  
 Sample Mean: 4.270  
 Sample Standard Deviation: 0.779

25% Quartile: 23000.0  
 50% Quartile(median): 33000.0  
 75% Quartile: 50700.0  
 Inter-Quartile Range: 27700.00  
 Upper Cutoff: 92250.00

Required Level of Confidence:	log()	Natural Scale
95%	4.60	
Upper Confidence Limit:		
Upper Tolerance Limit:	5.67	466315.3

### PROBABILITY PLOT



■ Sample Data      Linear (Sample Data)

### STATISTICAL EVALUATION USING NORMAL DISTRIBUTION

**PROJECT:** Delphi Corporation - Vandalia Facility - Vandalia, OH

**LOCATION:** MW-432D

**COMPOUND:** Trichloroethene

**COMMENT:**

Order	Sample Concentration
1	0.11
2	0.11
3	0.11
4	0.6
5	1
6	1.4
7	6.8
8	9.1
9	12
10	13.6
11	13.7
12	20
13	21
14	94.5
15	96.4
16	186.00
17	
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	

Normal Distribution Probability	Quartile
5.9	-1.56
11.8	-1.19
17.6	-0.93
23.5	-0.72
29.4	-0.54
35.3	-0.38
41.2	-0.22
47.1	-0.07
52.9	0.07
58.8	0.22
64.7	0.38
70.6	0.54
76.5	0.72
82.4	0.93
88.2	1.19
94.1	1.56

Shapiro-Wilk Normality Test		
Residual	Coefficient (a)	Product (b)
185.89	0.5056	93.99
96.29	0.3290	31.68
94.39	0.2521	23.80
20.40	0.1939	3.96
19.00	0.1447	2.75
12.30	0.1005	1.24
6.80	0.0593	0.40
2.90	0.0196	0.06
	0.0000	
	0.0000	
	0.0000	
	0.0000	
	0.0000	
	0.0000	
	0.0000	

Shapiro-Wilk Sum: 157.862

Shapiro-Wilk W: 0.621

Critical Value: 5%

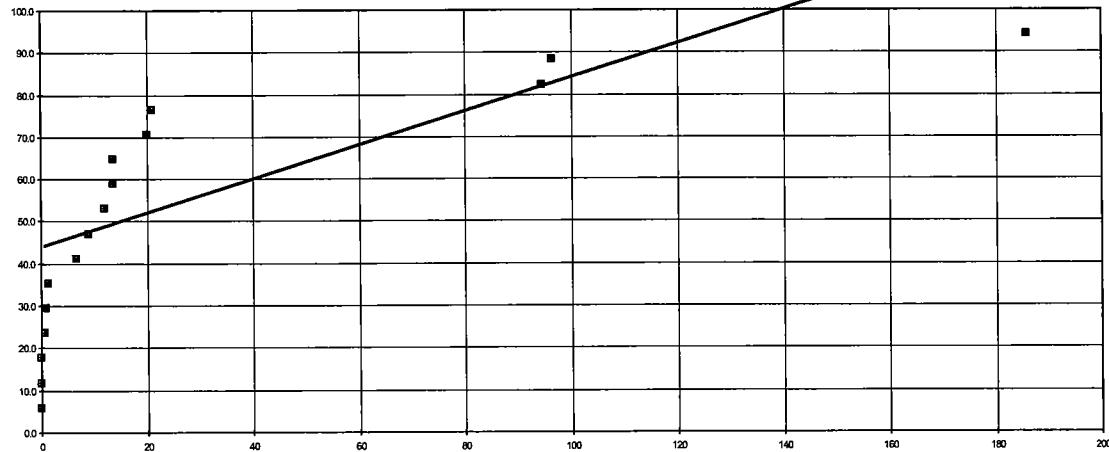
Shapiro-Wilk Comparison W: 0.8870

Normality?: Does Not Appear Normally Distributed

Number of Samples: 16  
 Sample Mean: 29.777  
 Sample Standard Deviation: 51.719

25% Quartile: 0.9  
 50% Quartile(median): 10.6  
 75% Quartile: 20.3  
 Inter-Quartile Range: 19.4  
 Upper Cutoff: 49.3

Required Level of Confidence: 95%  
 Upper Confidence Limit: 52.44  
 Upper Tolerance Limit: 123.2



### STATISTICAL EVALUATION USING LOG-NORMAL DISTRIBUTION

**PROJECT:** Delphi Corporation - Vandalia Facility - Vandalia, OH

**LOCATION:** MW-432D

**COMPOUND:** Trichloroethene

**COMMENT:**

Order	Sample Log Conc.
1	-0.96
2	-0.96
3	-0.96
4	-0.22
5	0.00
6	0.15
7	0.83
8	0.96
9	1.08
10	1.13
11	1.14
12	1.30
13	1.32
14	1.98
15	1.98
16	2.27
17	
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	

Normal Distribution Probability	Quartile
5.9	-1.56
11.8	-1.19
17.6	-0.93
23.5	-0.72
29.4	-0.54
35.3	-0.38
41.2	-0.22
47.1	-0.07
52.9	0.07
58.8	0.22
64.7	0.38
70.6	0.54
76.5	0.72
82.4	0.93
88.2	1.19
94.1	1.56

Shapiro-Wilk Normality Test		
Residual	Coefficient (a)	Product (b)
3.23	0.5056	1.63
2.94	0.3290	0.97
2.93	0.2521	0.74
1.54	0.1939	0.30
1.30	0.1447	0.19
0.99	0.1005	0.10
0.30	0.0593	0.02
0.12	0.0196	0.00
	0.0000	
	0.0000	
	0.0000	
	0.0000	
	0.0000	
	0.0000	
	0.0000	

Shapiro-Wilk Sum: 3.947

Shapiro-Wilk W: 0.917

Critical Value: 5.0%

Shapiro-Wilk Comparison W: 0.8870

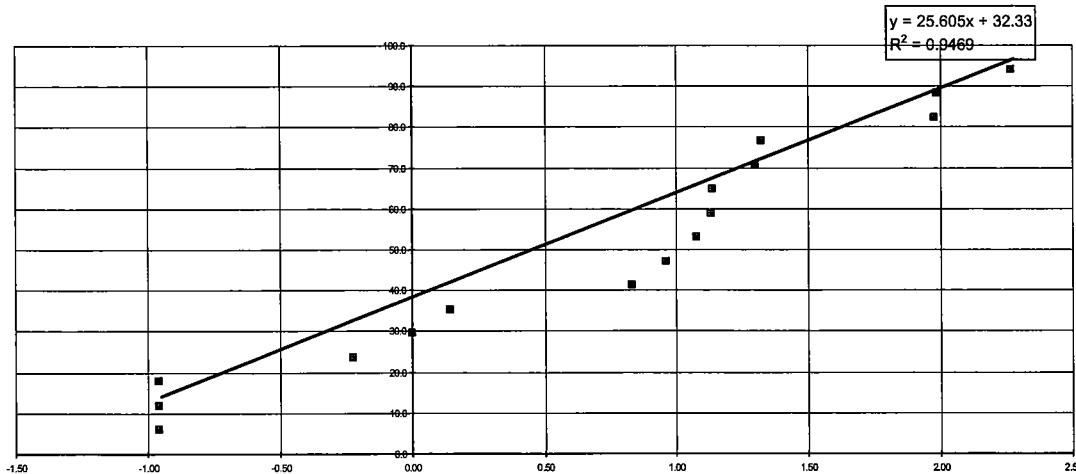
Normality?: Appears LogNormally Distributed

log()  
 Number of Samples: 16  
 Sample Mean: 0.690  
 Sample Standard Deviation: 1.064

25% Quartile: 0.9  
 50% Quartile(median): 10.6  
 75% Quartile: 20.3  
 Inter-Quartile Range: 19.35  
 Upper Cutoff: 49.28

Required Level of Confidence: 95%  
 log() Natural Scale  
 Upper Confidence Limit: 1.16  
 Upper Tolerance Limit: 2.61 410.6

PROBABILITY PLOT



### STATISTICAL EVALUATION USING NORMAL DISTRIBUTION

**PROJECT:** Delphi Corporation - Vandalia Facility - Vandalia, OH

**LOCATION:** MW-433D

**COMPOUND:** Trichloroethene

**COMMENT:**

Order	Sample Concentration
1	1.4
2	6.7
3	22
4	36
5	51
6	58
7	79
8	100
9	130
10	130
11	130
12	134
13	250
14	426
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	

Normal Distribution Probability	Quartile
6.7	-1.50
13.3	-1.11
20.0	-0.84
26.7	-0.62
33.3	-0.43
40.0	-0.25
46.7	-0.08
53.3	0.08
60.0	0.25
66.7	0.43
73.3	0.62
80.0	0.84
86.7	1.11
93.3	1.50

Shapiro-Wilk Normality Test		
Residual	Coefficient (a)	Product (b)
424.60	0.5251	222.96
243.30	0.3318	80.73
112.00	0.2460	27.55
94.00	0.1802	16.94
79.00	0.1240	9.80
72.00	0.0727	5.23
21.00	0.0240	0.50
	0.0000	
	0.0000	
	0.0000	
	0.0000	
	0.0000	
	0.0000	
	0.0000	
	0.0000	

Shapiro-Wilk Sum: 363.710

Shapiro-Wilk W: 0.806

Critical Value: 5%

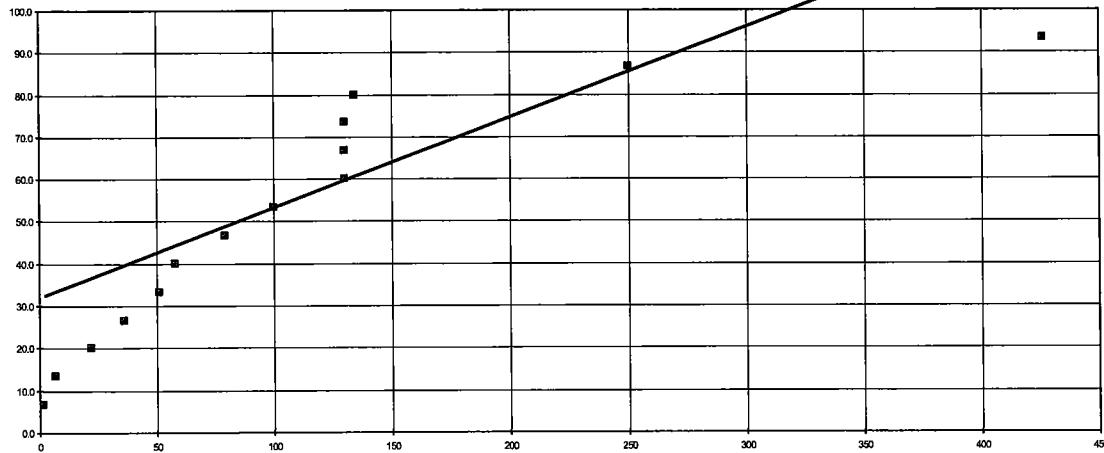
Shapiro-Wilk Comparison W: 0.8740

Normality?: Does Not Appear Normally Distributed

Number of Samples: 14  
 Sample Mean: 111.007  
 Sample Standard Deviation: 112.369

25% Quartile: 39.8  
 50% Quartile(median): 89.5  
 75% Quartile: 130.0  
 Inter-Quartile Range: 90.3  
 Upper Cutoff: 265.4

Required Level of Confidence: 95%  
 Upper Confidence Limit: 164.19  
 Upper Tolerance Limit: 317.0



■ Sample Data

Linear (Sample Data)

## STATISTICAL EVALUATION USING LOG-NORMAL DISTRIBUTION

**PROJECT:** Delphi Corporation - Vandalia Facility - Vandalia, OH

**LOCATION:** MW-433D

**COMPOUND:** Trichloroethene

**COMMENT:**

Order	Sample Log Conc.
1	0.15
2	0.83
3	1.34
4	1.56
5	1.71
6	1.76
7	1.90
8	2.00
9	2.11
10	2.11
11	2.11
12	2.13
13	2.40
14	2.63
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	

Shapiro-Wilk Sum: 2.197

Shapiro-Wilk W: 0.887

Critical Value: 5.0%

Shapiro-Wilk Comparison W: 0.8740

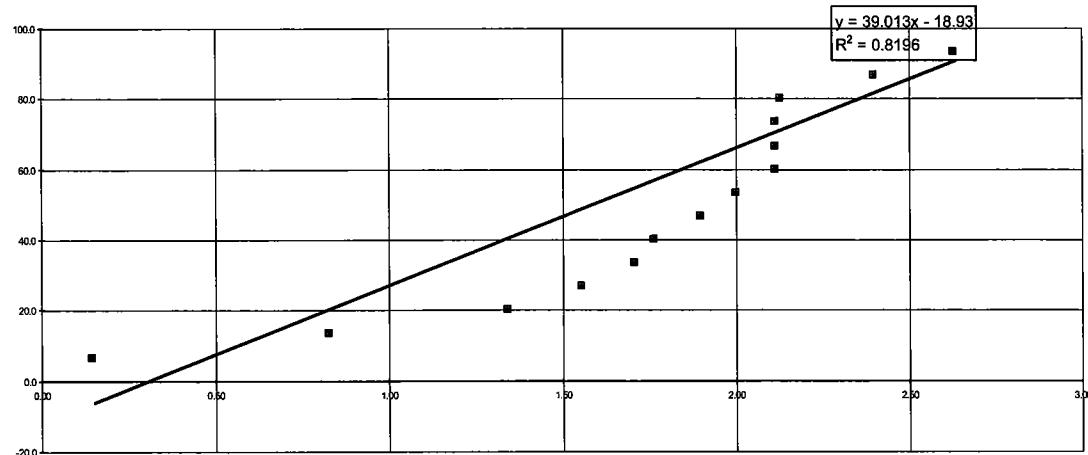
Normality?: Appears LogNormally Distributed

Number of Samples:	$\log()$
Sample Mean:	1.767
Sample Standard Deviation:	0.647

25% Quartile:	39.8
50% Quartile(median):	89.5
75% Quartile:	130.0
Inter-Quartile Range:	90.25
Upper Cutoff:	265.38

Required Level of Confidence:	$\log()$	Natural Scale
	95%	
Upper Confidence Limit:	2.07	
Upper Tolerance Limit:	2.95	897.8

## PROBABILITY PLOT



## **STATISTICAL EVALUATION USING NORMAL DISTRIBUTION**

**PROJECT:** Delphi Corporation - Vandalia Facility - Vandalia, OH

**LOCATION:** MW-434D

**COMPOUND:** Trichloroethene

**COMMENT:**

Order	Sample Concentration
1	23
2	59
3	60
4	89
5	91
6	100
7	100
8	110
9	140
10	140
11	180
12	190
13	200
14	229
15	240
16	328
17	457
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	

Shapiro-Wilk Sum: 410.677

Shapiro-Wilk W: 0.889

Critical Value: 5%

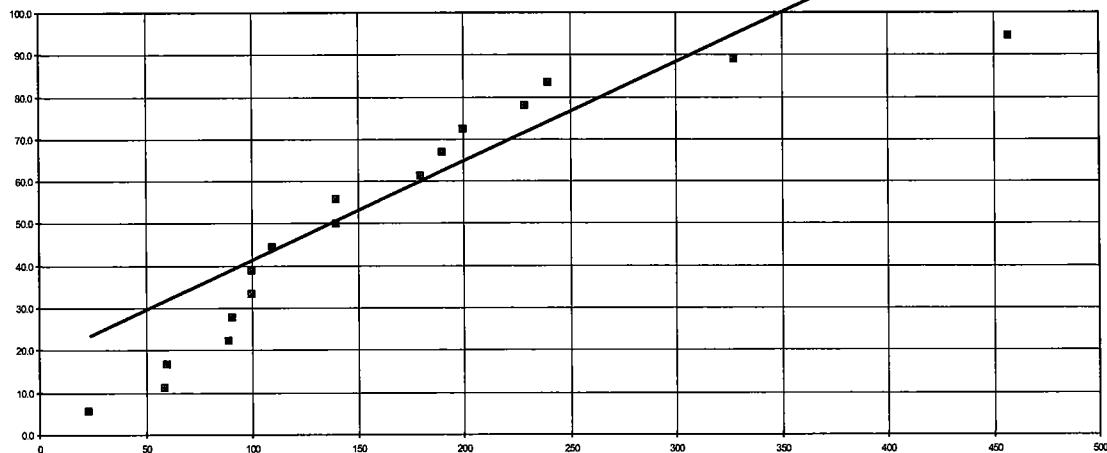
Wilk Comparison W: 0.8920

## Normality?: Does Not Appear Normally Distributed

Number of Samples:	17
Sample Mean:	160.941
Sample Standard Deviation:	108.901

25% Quatile:	91.0
50% Quatile(median):	140.0
75% Quatile:	200.0
Inter-Quatile Range:	109.0
Upper Cutoff:	363.5

Required Level of Confidence:	95%
Upper Confidence Limit:	207.05
Upper Tolerance Limit:	356.6



## ■ Sample Data

## Linear (Sample Data)

### STATISTICAL EVALUATION USING LOG-NORMAL DISTRIBUTION

**PROJECT:** Delphi Corporation - Vandalia Facility - Vandalia, OH

**LOCATION:** MW-434D

**COMPOUND:** Trichloroethene

**COMMENT:**

Order	Sample Log Conc.
1	1.36
2	1.77
3	1.78
4	1.95
5	1.96
6	2.00
7	2.00
8	2.04
9	2.15
10	2.15
11	2.26
12	2.28
13	2.30
14	2.36
15	2.38
16	2.52
17	2.66
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	

Normal Distribution	
Probability	Quartile
5.6	-1.59
11.1	-1.22
16.7	-0.97
22.2	-0.76
27.8	-0.59
33.3	-0.43
38.9	-0.28
44.4	-0.14
50.0	0.00
55.6	0.14
61.1	0.28
66.7	0.43
72.2	0.59
77.8	0.76
83.3	0.97
88.9	1.22
94.4	1.59

Shapiro-Wilk Normality Test		
Residual	Coefficient (a)	Product (b)
1.30	0.4968	0.64
0.75	0.3273	0.24
0.60	0.2540	0.15
0.41	0.1988	0.08
0.34	0.1524	0.05
0.28	0.1109	0.03
0.26	0.0725	0.02
0.10	0.0359	0.00
	0.0000	
	0.0000	
	0.0000	
	0.0000	
	0.0000	
	0.0000	
	0.00	

Shapiro-Wilk Sum: 1.229

Shapiro-Wilk W: 0.972

Critical Value: 5.0%

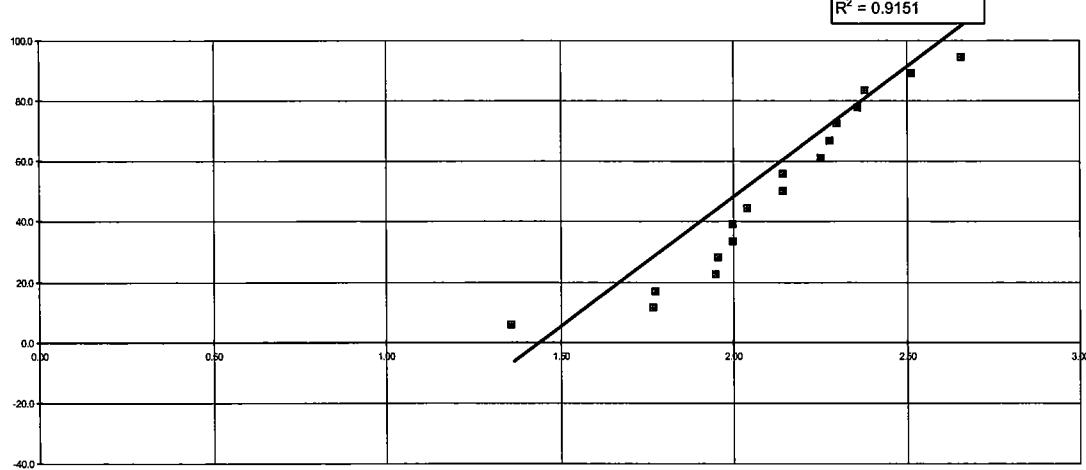
Shapiro-Wilk Comparison W: 0.8920

Normality?: Appears LogNormally Distributed

Number of Samples: 17  
 Sample Mean: 2.112  
 Sample Standard Deviation: 0.312

25% Quartile: 91.0  
 50% Quartile(median): 140.0  
 75% Quartile: 200.0  
 Inter-Quartile Range: 109.00  
 Upper Cutoff: 363.50

Required Level of Confidence: 95%  
 Natural Scale  
 log()  
 Upper Confidence Limit: 2.24  
 Upper Tolerance Limit: 2.67 469.7



■ Sample Data Linear (Sample Data)

## **STATISTICAL EVALUATION USING NORMAL DISTRIBUTION**

**PROJECT:** Delphi Corporation - Vandalia Facility - Vandalia, OH

**LOCATION:** MW-435D

**COMPOUND:** Trichloroethene

**COMMENT:**

Order	Sample Concentration
1	13
2	41
3	56
4	61
5	83
6	89
7	94
8	100
9	110
10	150
11	150
12	280
13	340
14	360
15	682
16	785.00
17	890.00
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	

Shapiro-Wilk Sum: 963.854

Shapiro-Wilk W: 0.763

Critical Value: 5%

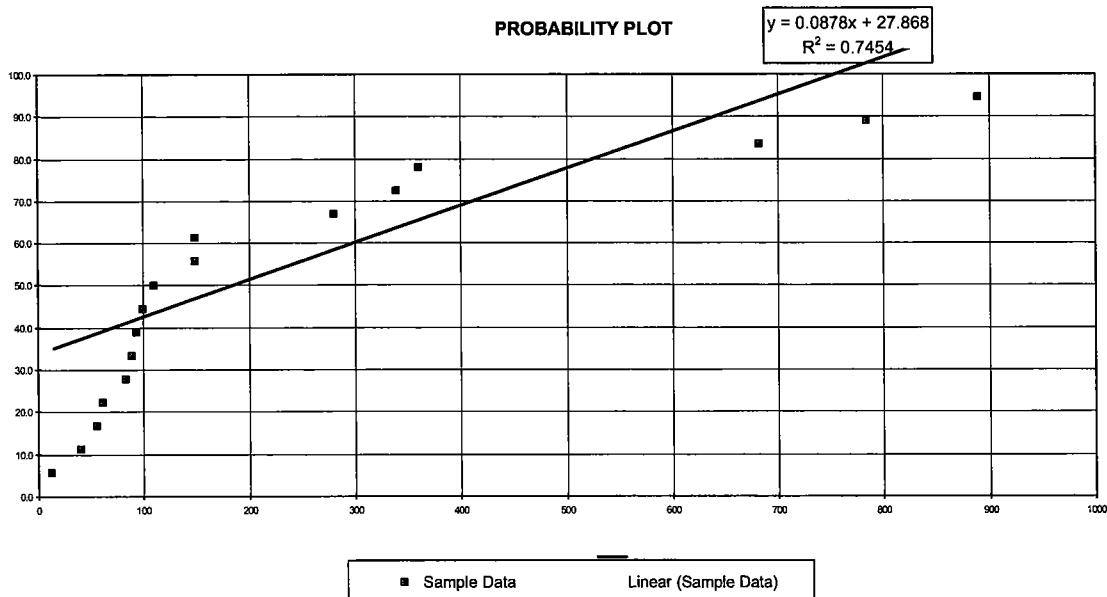
Shapiro-Wilk Comparison W: 0.8920

**Normality?: Does Not Appear Normally Distributed**

Number of Samples:	17
Sample Mean:	252.000
Sample Standard Deviation:	275.787

25% Quartile:	83.0
50% Quartile(median):	110.0
75% Quartile:	340.0
Inter-Quartile Range:	257.0
Upper Cutoff:	725.5

Required Level of Confidence:	95%
Upper Confidence Limit:	368.78
Upper Tolerance Limit:	747.5



### STATISTICAL EVALUATION USING LOG-NORMAL DISTRIBUTION

**PROJECT:** Delphi Corporation - Vandalia Facility - Vandalia, OH

**LOCATION:** MW-435D

**COMPOUND:** Trichloroethene

**COMMENT:**

Order	Sample Log Conc.
1	1.11
2	1.61
3	1.75
4	1.79
5	1.92
6	1.95
7	1.97
8	2.00
9	2.04
10	2.18
11	2.18
12	2.45
13	2.53
14	2.56
15	2.83
16	2.89
17	2.95
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	

Normal Distribution Probability	Quartile
5.6	-1.59
11.1	-1.22
16.7	-0.97
22.2	-0.76
27.8	-0.59
33.3	-0.43
38.9	-0.28
44.4	-0.14
50.0	0.00
55.6	0.14
61.1	0.28
66.7	0.43
72.2	0.59
77.8	0.76
83.3	0.97
88.9	1.22
94.4	1.59

Shapiro-Wilk Normality Test		
Residual	Coefficient (a)	Product (b)
1.84	0.4968	0.91
1.28	0.3273	0.42
1.09	0.2540	0.28
0.77	0.1988	0.15
0.61	0.1524	0.09
0.50	0.1109	0.06
0.20	0.0725	0.01
0.18	0.0359	0.01
	0.0000	
	0.0000	
	0.0000	
	0.0000	
	0.0000	
	0.0000	
	0.00	

Shapiro-Wilk Sum: 1.930

Shapiro-Wilk W: 0.961

Critical Value: 5.0%

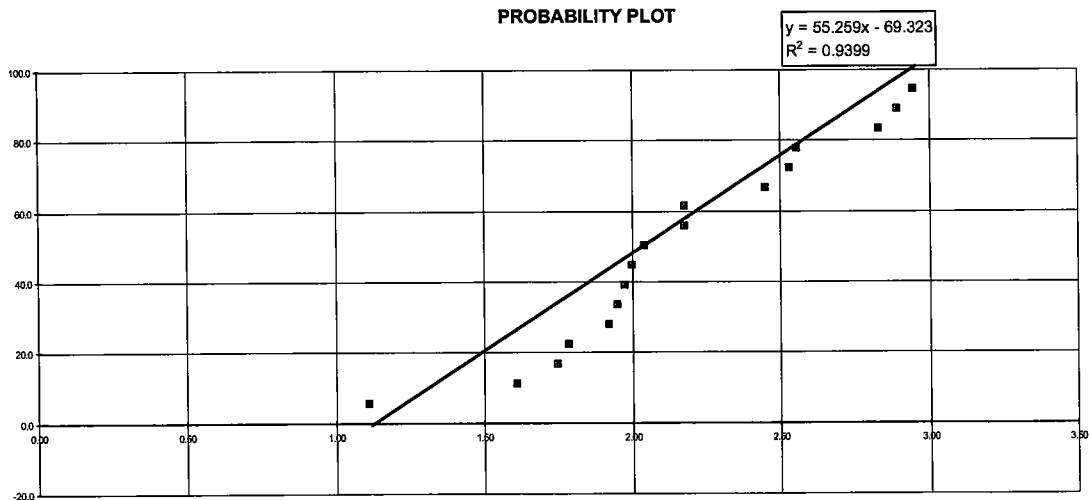
Shapiro-Wilk Comparison W: 0.8920

Normality?: Appears LogNormally Distributed

Number of Samples: 17  
 Sample Mean: 2.159  
 Sample Standard Deviation: 0.492

25% Quartile: 83.0  
 50% Quartile(median): 110.0  
 75% Quartile: 340.0  
 Inter-Quartile Range: 257.00  
 Upper Cutoff: 725.50

Required Level of Confidence:	log() Natural Scale
Upper Confidence Limit:	95% 2.37
Upper Tolerance Limit:	3.04 1105.4



### STATISTICAL EVALUATION USING NORMAL DISTRIBUTION

**PROJECT:** Delphi Corporation - Vandalia Facility - Vandalia, OH  
**LOCATION:** MW-436D  
**COMPOUND:** Trichloroethene  
**COMMENT:**

Order	Sample Concentration
1	15
2	21
3	24
4	25
5	26
6	27
7	38
8	46
9	66
10	68
11	100
12	303
13	332
14	474
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	

Normal Distribution Probability	Quartile
6.7	-1.50
13.3	-1.11
20.0	-0.84
26.7	-0.62
33.3	-0.43
40.0	-0.25
46.7	-0.08
53.3	0.08
60.0	0.25
66.7	0.43
73.3	0.62
80.0	0.84
86.7	1.11
93.3	1.50

Shapiro-Wilk Normality Test		
Residual	Coefficient (a)	Product (b)
459.00	0.5251	241.02
311.00	0.3318	103.19
279.00	0.2460	68.63
75.00	0.1802	13.52
42.00	0.1240	5.21
39.00	0.0727	2.84
8.00	0.0240	0.19
	0.0000	
	0.0000	
	0.0000	
	0.0000	
	0.0000	
	0.0000	
	0.0000	
	0.0000	

Shapiro-Wilk Sum: 434.595

Shapiro-Wilk W: 0.680

Critical Value: 5%

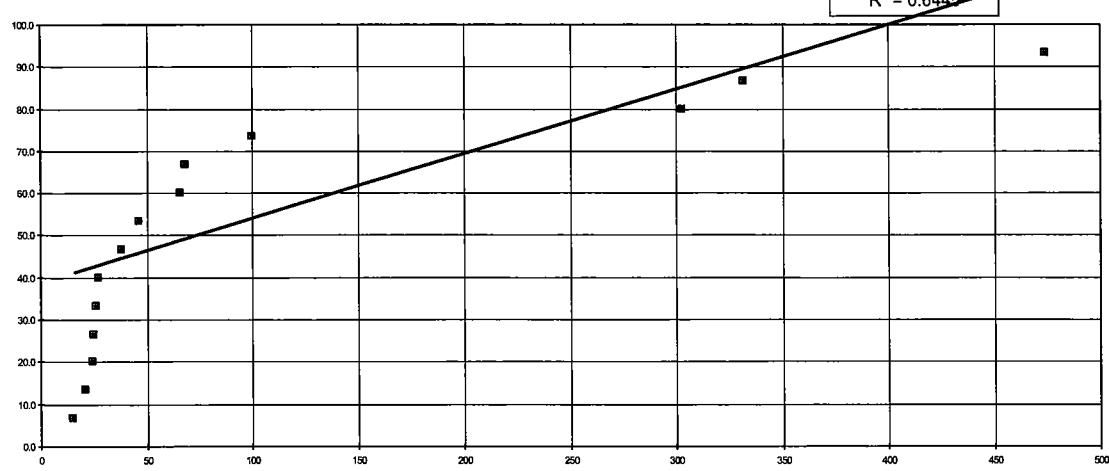
Shapiro-Wilk Comparison W: 0.8740

Normality?: Does Not Appear Normally Distributed

Number of Samples: 14  
 Sample Mean: 111.786  
 Sample Standard Deviation: 146.123

25% Quartile: 25.3  
 50% Quartile(median): 42.0  
 75% Quartile: 92.0  
 Inter-Quartile Range: 66.8  
 Upper Cutoff: 192.1

Required Level of Confidence: 95%  
 Upper Confidence Limit: 180.95  
 Upper Tolerance Limit: 379.6



## **STATISTICAL EVALUATION USING LOG-NORMAL DISTRIBUTION**

**PROJECT:** Delphi Corporation - Vandalia Facility - Vandalia, OH

**LOCATION:** MW-436D

**COMPOUND:** Trichloroethene

**COMMENT:**

Order	Sample Log Conc.
1	1.18
2	1.32
3	1.38
4	1.40
5	1.41
6	1.43
7	1.58
8	1.66
9	1.82
10	1.83
11	2.00
12	2.48
13	2.52
14	2.68
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	

Shapiro-Wilk Sum: 1.647

Shapiro-Wilk W: 0.880

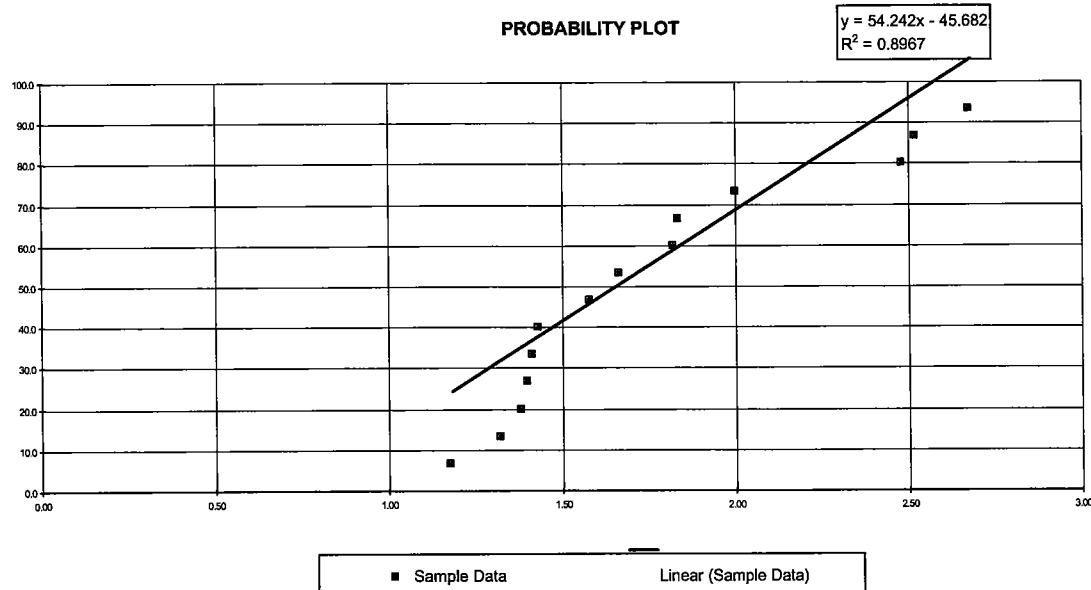
Critical Value: 5.0%

Shapiro-Wilk Comparison W: 0.8740

Normality?: Appears LogNormally Distributed

Number of Samples:	log()
	14
Sample Mean:	1.764
Sample Standard Deviation:	0.487
25% Quartile:	25.3
50% Quartile(median):	42.0
75% Quartile:	92.0
Inter-Quartile Range:	66.75
Upper Cutoff:	192.13

Required Level of Confidence:	95%	log( )	Natural Scale
Upper Confidence Limit:	1.99		
Upper Tolerance Limit:	2.66		453.4



### STATISTICAL EVALUATION USING NORMAL DISTRIBUTION

**PROJECT:** Delphi Corporation - Vandalia Facility - Vandalia, OH

**LOCATION:** MW-437D

**COMPOUND:** Trichloroethene

**COMMENT:**

Order	Sample Concentration
1	16
2	34
3	55
4	60
5	73
6	88
7	92
8	98
9	100
10	100
11	110
12	167
13	243
14	364
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	

Normal Distribution Probability	Quartile
6.7	-1.50
13.3	-1.11
20.0	-0.84
26.7	-0.62
33.3	-0.43
40.0	-0.25
46.7	-0.08
53.3	0.08
60.0	0.25
66.7	0.43
73.3	0.62
80.0	0.84
86.7	1.11
93.3	1.50

Shapiro-Wilk Normality Test		
Residual	Coefficient (a)	Product (b)
348.00	0.5251	182.73
209.00	0.3318	69.35
112.00	0.2460	27.55
50.00	0.1802	9.01
27.00	0.1240	3.35
12.00	0.0727	0.87
6.00	0.0240	0.14
	0.0000	
	0.0000	
	0.0000	
	0.0000	
	0.0000	
	0.0000	
	0.0000	
	0.0000	

Shapiro-Wilk Sum: 293.007

Shapiro-Wilk W: 0.796

Critical Value: 5%

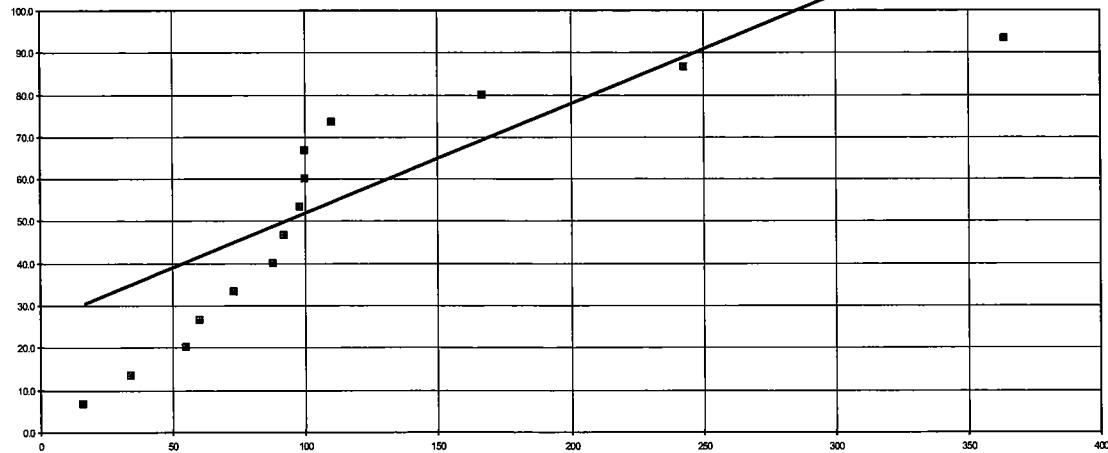
Shapiro-Wilk Comparison W: 0.8740

Normality?: Does Not Appear Normally Distributed

Number of Samples: 14  
 Sample Mean: 114.286  
 Sample Standard Deviation: 91.085

25% Quartile: 63.3  
 50% Quartile(median): 95.0  
 75% Quartile: 107.5  
 Inter-Quartile Range: 44.3  
 Upper Cutoff: 173.9

Required Level of Confidence: 95%  
 Upper Confidence Limit: 157.40  
 Upper Tolerance Limit: 281.3



■ Sample Data

Linear (Sample Data)

## **STATISTICAL EVALUATION USING LOG-NORMAL DISTRIBUTION**

**PROJECT:** Delphi Corporation - Vandalia Facility - Vandalia, OH

**LOCATION: MW-437D**

**COMPOUND:** Trichloroethene

**COMMENT:**

Order	Sample Log Conc.
1	1.20
2	1.53
3	1.74
4	1.78
5	1.86
6	1.94
7	1.96
8	1.99
9	2.00
10	2.00
11	2.04
12	2.22
13	2.39
14	2.56
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	

**Shapiro-Wilk Sum:**

Shapiro-Wilk W: 0.956

Critical Value: 5.0% Wilk Comparison W: 0.8740

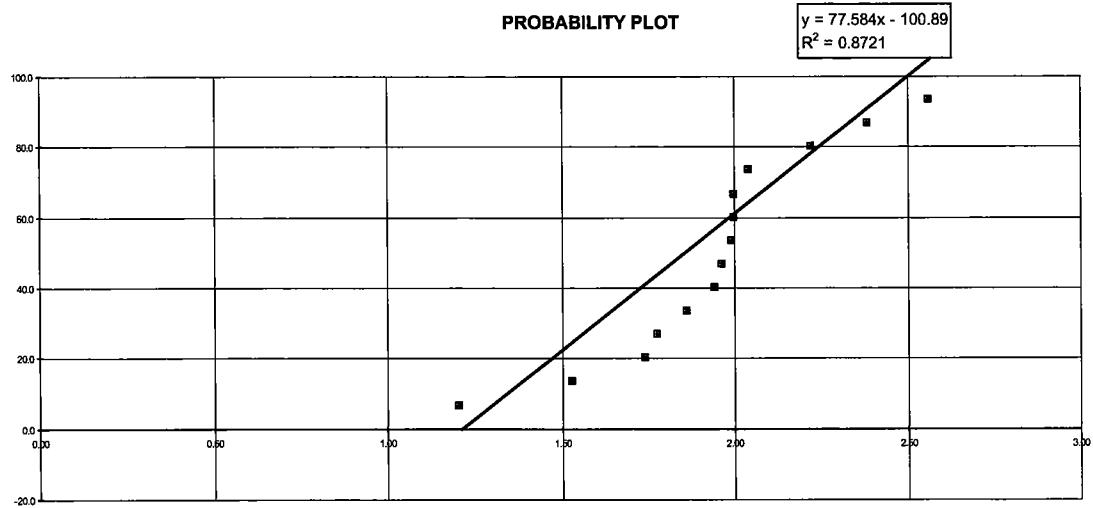
Shapiro-Wilk Comparison W: 0.8740

Normality?: Appears LogNormally Distributed

Number of Samples:	14
Sample Mean:	1.945
Sample Standard Deviation:	0.336

25% Quartile:	63.3
50% Quartile(median):	95.0
75% Quartile:	107.5
Inter-Quartile Range:	44.25
Upper Cutoff:	173.88

Required Level of Confidence:	$\log()$	Natural Scale
	95%	
Upper Confidence Limit:	2.10	
Upper Tolerance Limit:	2.56	363.2



#### ■ Sample Data

## Linear (Sample Data)

### STATISTICAL EVALUATION USING NORMAL DISTRIBUTION

**PROJECT:** Delphi Corporation - Vandalia Facility - Vandalia, OH

**LOCATION:** MW-438D

**COMPOUND:** Trichloroethene

**COMMENT:**

Order	Sample Concentration
1	15
2	17
3	20
4	22.4
5	32
6	32
7	33
8	38
9	38.4
10	41.4
11	45
12	48
13	83
14	89
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	

Normal Distribution Probability	Quartile
6.7	-1.50
13.3	-1.11
20.0	-0.84
26.7	-0.62
33.3	-0.43
40.0	-0.25
46.7	-0.08
53.3	0.08
60.0	0.25
66.7	0.43
73.3	0.62
80.0	0.84
86.7	1.11
93.3	1.50

Shapiro-Wilk Normality Test		
Residual	Coefficient (a)	Product (b)
74.00	0.5251	38.86
66.00	0.3318	21.90
28.00	0.2460	6.89
22.60	0.1802	4.07
9.40	0.1240	1.17
6.40	0.0727	0.47
5.00	0.0240	0.12
	0.0000	
	0.0000	
	0.0000	
	0.0000	
	0.0000	
	0.0000	
	0.0000	
	0.0000	

Shapiro-Wilk Sum: 73.468

Shapiro-Wilk W: 0.845

Critical Value: 5%

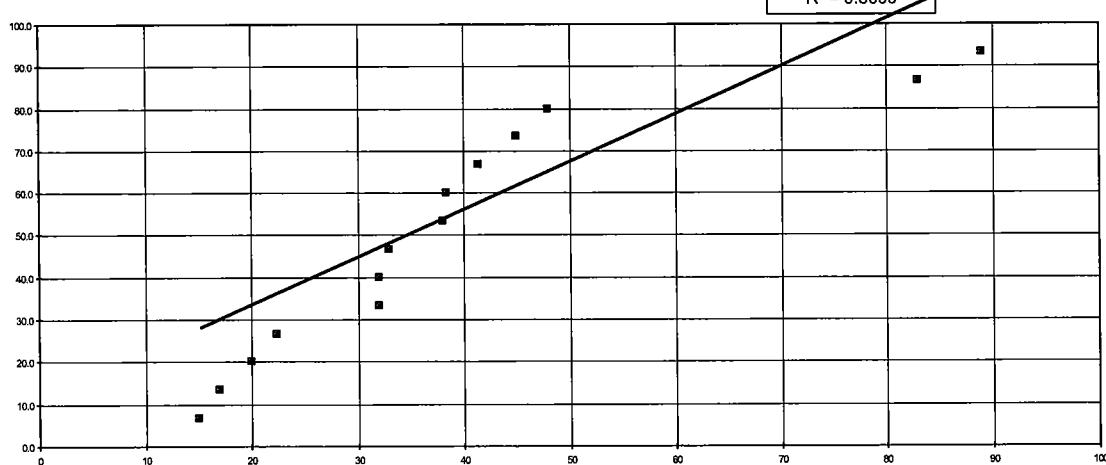
Shapiro-Wilk Comparison W: 0.8740

Normality?: Does Not Appear Normally Distributed

Number of Samples: 14  
 Sample Mean: 39.586  
 Sample Standard Deviation: 22.164

25% Quartile: 24.8  
 50% Quartile(median): 35.5  
 75% Quartile: 44.1  
 Inter-Quartile Range: 19.3  
 Upper Cutoff: 73.1

Required Level of Confidence: 95%  
 Upper Confidence Limit: 50.08  
 Upper Tolerance Limit: 80.2



■ Sample Data      Linear (Sample Data)

## STATISTICAL EVALUATION USING LOG-NORMAL DISTRIBUTION

**PROJECT:** Delphi Corporation - Vandalia Facility - Vandalia, OH

**LOCATION:** MW-438D

**COMPOUND:** Trichloroethene

**COMMENT:**

Order	Sample Log Conc.
1	1.18
2	1.23
3	1.30
4	1.35
5	1.51
6	1.51
7	1.52
8	1.58
9	1.58
10	1.62
11	1.65
12	1.68
13	1.92
14	1.95
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	

Shapiro-Wilk Sum: 0.804

Shapiro-Wilk W: 0.953

**Critical Value:** 5.0%

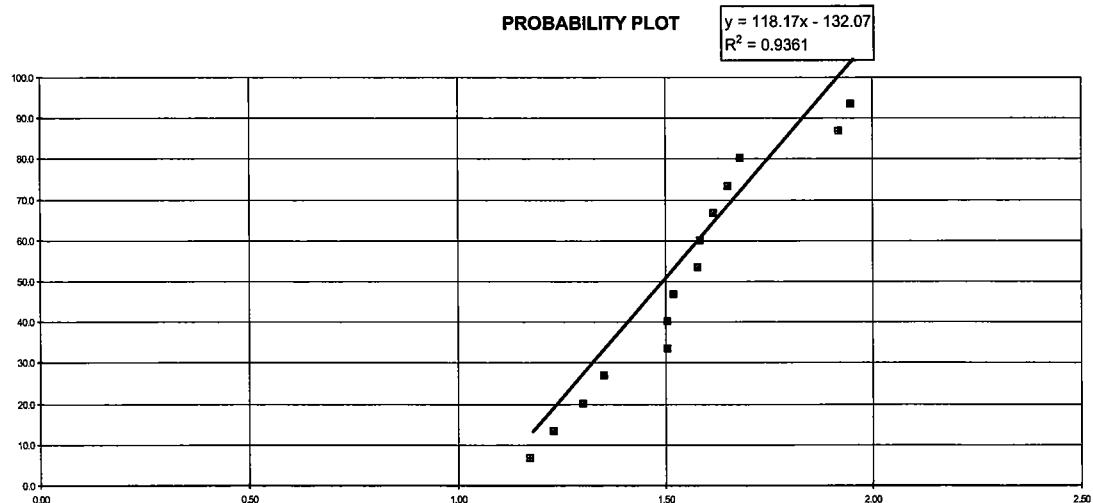
Shapiro-Wilk Comparison W: 0.8740

**Normality?:** Appears LogNormally Distributed

Number of Samples:	14
Sample Mean:	1.541
Sample Standard Deviation:	0.228

25% Quartile:	24.8
50% Quartile(median):	35.5
75% Quartile:	44.1
Inter-Quartile Range:	19.30
Upper Cutoff:	73.05

Required Level of Confidence:	log()	Natural Scale
Upper Confidence Limit:	1.65	
Upper Tolerance Limit:	1.96	91.1%



## ■ Sample Data

### Linear (Sample Data)

## **STATISTICAL EVALUATION USING NORMAL DISTRIBUTION**

**PROJECT:** Delphi Corporation - Vandalia Faciltiy - Vandalia, OH

**LOCATION:** MW-440D

**COMPOUND:** Trichloroethene

**COMMENT:**

Order	Sample Concentration
1	0.22
2	0.365
3	1.5
4	3.6
5	5.4
6	8.6
7	13
8	15
9	16
10	17
11	25
12	25.7
13	27
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	

**Shapiro-Wilk Sum:** 32.241

Shapiro-Wilk W: 0.910

Critical Value: 5%

Shapiro-Wilk Comparison W: 0.8868

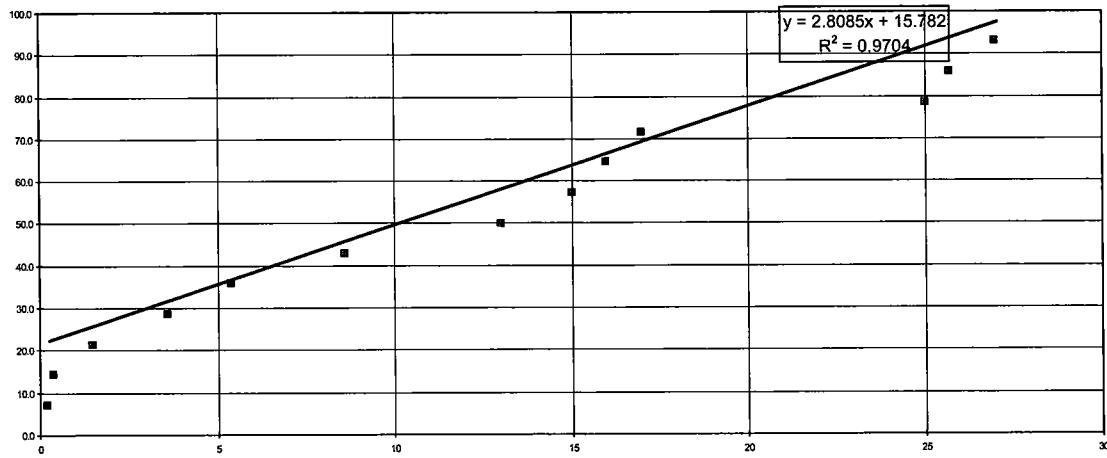
Normality?: Appears Normally Distributed

Number of Samples:	13
Sample Mean:	12.183
Sample Standard Deviation:	9.757

25% Quartile:	3.6
50% Quartile(median):	13.0
75% Quartile:	17.0
Inter-Quartile Range:	13.4
Upper Cutoff:	37.1

<b>Required Level of Confidence:</b>	95%
<b>Upper Confidence Limit:</b>	17.01
<b>Upper Tolerance Limit:</b>	30.2

## PROBABILITY PLOT



## ■ Sample Data

## Linear (Sample Data)

## **STATISTICAL EVALUATION USING LOG-NORMAL DISTRIBUTION**

**PROJECT:** Delphi Corporation - Vandalia Facility - Vandalia, OH

**LOCATION:** MW-440D

**COMPOUND:** Trichloroethylene

**COMMENT:**

Order	Sample Log Conc.
1	-0.66
2	-0.44
3	0.18
4	0.56
5	0.73
6	0.93
7	1.11
8	1.18
9	1.20
10	1.23
11	1.40
12	1.41
13	1.43
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	

**Shapiro-Wilk Sum:** 2.208

Shapiro-Wilk W: 0.835

Critical Value: 5.0%

Shapiro-Wilk Comparison W: 0.8660

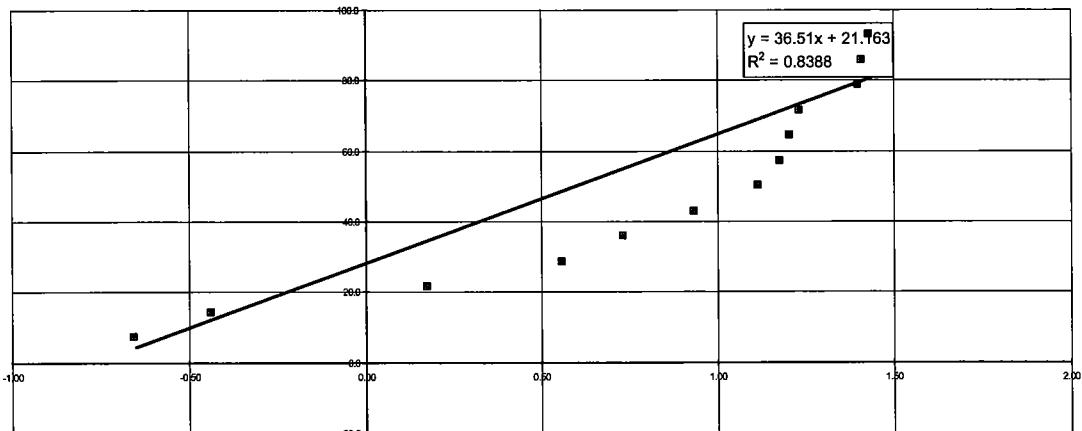
**Normality?: Does Not Appear LogNormally Distributed**

Number of Samples:	13
Sample Mean:	0.790
Sample Standard Deviation:	0.698

25% Quatile:	3.6
50% Quatile(median):	13.0
75% Quatile:	17.0
Inter-Quartile Range:	13.40
Upper Cutoff:	37.10

Required Level of Confidence:	log()	Natural Scale
	95%	
Upper Confidence Limit:	1.13	
Upper Tolerance Limit:	2.08	120.4

## PROBABILITY PLOT



## ■ Sample Data

## Linear (Sample Data)

## **STATISTICAL EVALUATION USING NORMAL DISTRIBUTION**

**PROJECT:** Delphi Corporation - Vandalia Facility - Vandalia, OH

LOCATION: MW-441D

**COMPOUND:** Trichloroethene

**COMMENT:**

Order	Sample Concentration
1	0.11
2	0.11
3	2.5
4	3.3
5	7.1
6	8.6
7	24
8	25
9	35
10	41
11	53
12	67
13	150
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	

Shapiro-Wilk Sum: 125.133

Shapiro-Wilk W: 0.757

Critical Value: 5%

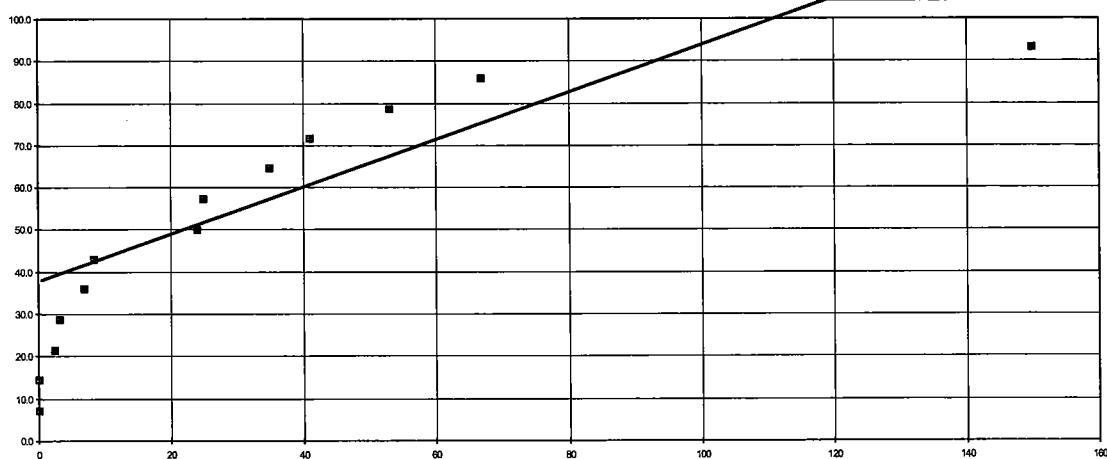
Shapiro-Wilk Comparison W: 0.8660

Normality?: Does Not Appear Normally Distributed

Number of Samples:	13
Sample Mean:	32.055
Sample Standard Deviation:	41.521

25% Quartile:	3.3
50% Quartile(median):	24.0
75% Quartile:	41.0
Inter-Quartile Range:	37.7
Upper Cutoff:	97.6

Required Level of Confidence:	95%
Upper Confidence Limit:	52.58
Upper Tolerance Limit:	108.9



## **STATISTICAL EVALUATION USING LOG-NORMAL DISTRIBUTION**

**PROJECT:** Delphi Corporation - Vandalia Facility - Vandalia, OH  
**LOCATION:** MW-441D  
**COMPOUND:** Trichloroethene  
**COMMENT:**

**COMMENT:**

Order	Sample Log Conc.
1	-0.96
2	-0.96
3	0.40
4	0.52
5	0.85
6	0.93
7	1.38
8	1.40
9	1.54
10	1.61
11	1.72
12	1.83
13	2.18
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	

**Shapiro-Wilk Sum:** 3.214

Shapiro-Wilk W: 0.873

Critical Value: 5.0%  
Wilk Comparison W: 0.8660

Shapiro-Wilk Comparison W: 0.8660

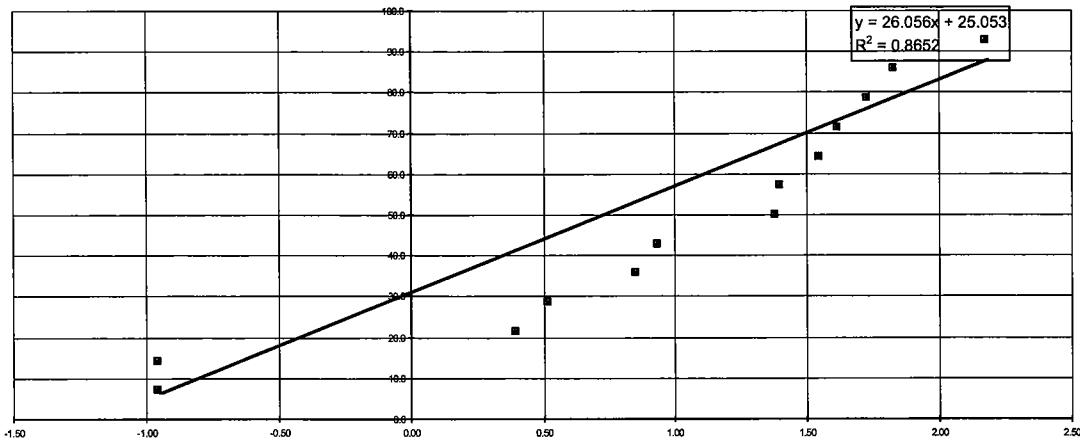
Normality?: Appears LogNormally Distributed

Number of Samples:	$\log()$
Sample Mean:	13
Sample Standard Deviation:	0.957

25% Quartile:	3.3
50% Quartile(median):	24.0
75% Quartile:	41.0
Inter-Quartile Range:	37.70
Upper Cutoff:	97.55

Required Level of Confidence:	log()	Natural Scale
Upper Confidence Limit:	95%	
Upper Tolerance Limit:	1.45	
Upper Tolerance Limit:	2.79	622.5

## PROBABILITY PLOT



### STATISTICAL EVALUATION USING NORMAL DISTRIBUTION

**PROJECT:** Delphi Corporation - Vandalia Facility - Vandalia, OH

**LOCATION:** MW-444D

**COMPOUND:** Trichloroethene

**COMMENT:**

Order	Sample Concentration
1	0.275
2	0.365
3	0.365
4	0.44
5	1.3
6	2.8
7	2.8
8	4.8
9	4.8
10	4.8
11	5
12	5
13	5.6
14	6.6
15	6.7
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	

Normal Distribution Probability	Quartile
6.3	-1.53
12.5	-1.15
18.8	-0.89
25.0	-0.67
31.3	-0.49
37.5	-0.32
43.8	-0.16
50.0	0.00
56.3	0.16
62.5	0.32
68.8	0.49
75.0	0.67
81.3	0.89
87.5	1.15
93.8	1.53

Shapiro-Wilk Normality Test		
Residual	Coefficient (a)	Product (b)
6.43	0.5150	3.31
6.24	0.3306	2.06
5.24	0.2495	1.31
4.56	0.1878	0.86
3.70	0.1353	0.50
2.00	0.0680	0.18
2.00	0.0433	0.09
	0.0000	
	0.0000	
	0.0000	
	0.0000	
	0.0000	
	0.0000	
	0.0000	
	0.0000	

Shapiro-Wilk Sum: 8.296

Shapiro-Wilk W: 0.871

Critical Value: 5%

Shapiro-Wilk Comparison W: 0.8810

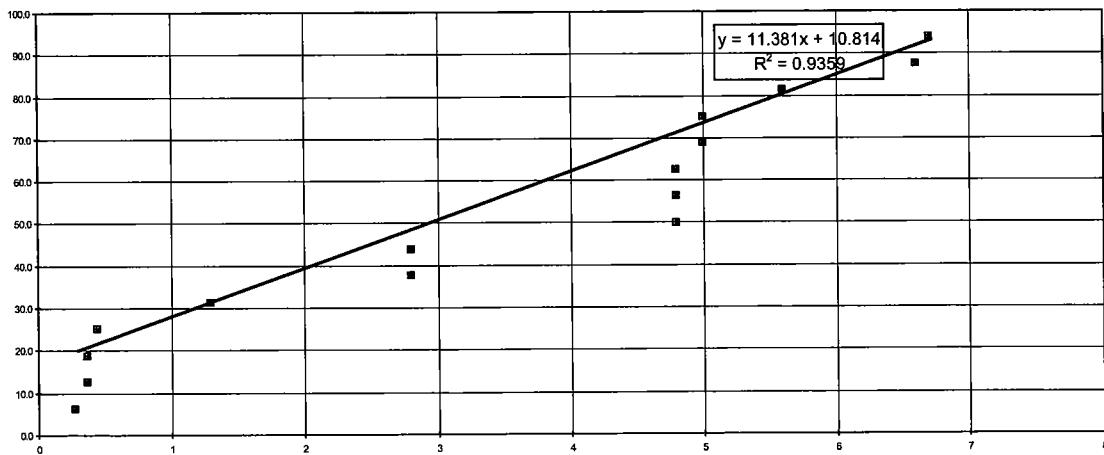
Normality?: Does Not Appear Normally Distributed

Number of Samples: 15  
 Sample Mean: 3.443  
 Sample Standard Deviation: 2.376

25% Quartile: 0.9  
 50% Quartile(median): 4.8  
 75% Quartile: 5.0  
 Inter-Quartile Range: 4.1  
 Upper Cutoff: 11.2

Required Level of Confidence: 95%  
 Upper Confidence Limit: 4.52  
 Upper Tolerance Limit: 7.8

#### PROBABILITY PLOT



## **STATISTICAL EVALUATION USING LOG-NORMAL DISTRIBUTION**

**PROJECT:** Delphi Corporation - Vandalia Facility - Vandalia, OH

**LOCATION:** MW-444D

**COMPOUND:** Trichloroethene

**COMMENT:**

Order	Sample Log Conc.
1	-0.56
2	-0.44
3	-0.44
4	-0.36
5	0.11
6	0.45
7	0.45
8	0.68
9	0.68
10	0.68
11	0.70
12	0.70
13	0.75
14	0.82
15	0.83
16	
17	
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**Shapiro-Wilk Sum:** 1.734

Shapiro-Wilk W: 0.787

Critical Value: 5.0%

Shapiro-Wilk Comparison W: 0.8810

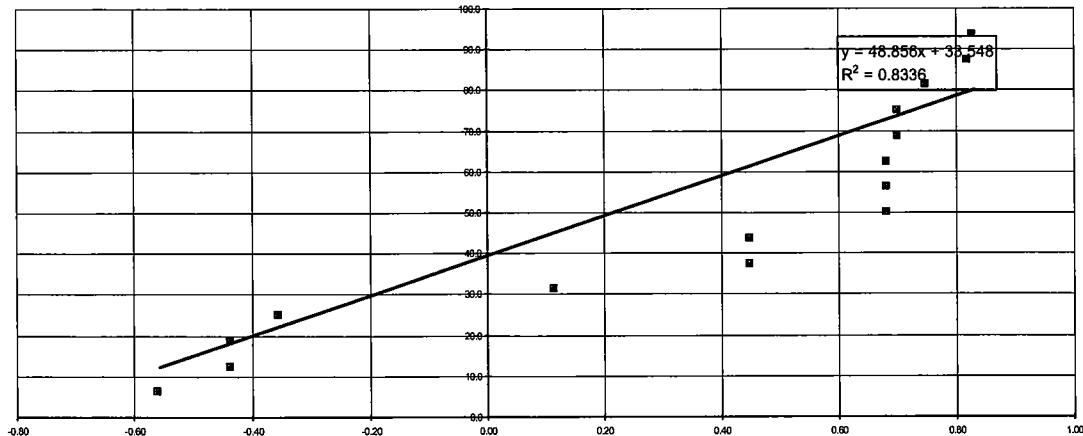
**Normality?: Does Not Appear LogNormally Distributed**

Number of Samples:	15
Sample Mean:	0.337
Sample Standard Deviation:	0.522

25% Quatile:	0.9
50% Quatile(median):	4.8
75% Quatile:	5.0
Inter-Quartile Range:	4.13
Upper Cutoff:	11.20

Required Level of Confidence:	$\log()$	Natural Scale
Upper Confidence Limit:	95%	
Upper Tolerance Limit:	0.57	
	1.29	19.4

## PROBABILITY PLOT



## ■ Sample Data

## Linear (Sample Data)

## **STATISTICAL EVALUATION USING NORMAL DISTRIBUTION**

**PROJECT:** Delphi Corporation - Vandalia Faciltiy - Vandalia, OH

**LOCATION: MW-448D**

**COMPOUND:** Trichloroethene

**COMMENT:**

Order	Sample Concentration
1	0.11
2	0.11
3	0.11
4	0.51
5	0.91
6	0.95
7	1.1
8	1.5
9	1.9
10	2.1
11	3.1
12	
13	
14	
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**Shapiro-Wilk Sum:** 2.894

Shapiro-Wilk W: 0.916

Critical Value: 5%

Shapiro-Wilk Comparison W: 0.8500

### Normality?: Appears Normally Distributed

Number of Samples:	11
Sample Mean:	1.127
Sample Standard Deviation:	0.956

25% Quartile:	0.3
50% Quartile(median):	1.0
75% Quartile:	1.7
Inter-Quartile Range:	1.4
Upper Cutoff:	3.8

<b>Required Level of Confidence:</b>	95%
<b>Upper Confidence Limit:</b>	1.65
<b>Upper Tolerance Limit:</b>	2.9

